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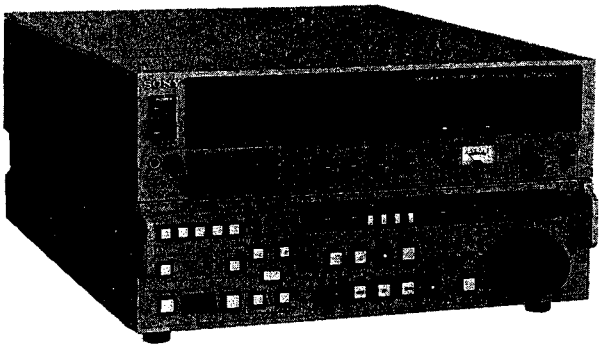
SONY

VIDEOCASSETTE RECORDER

BVW-D75/D75PS



BETACAM SP

OPERATION MANUAL English

1st Edition (Revised 1)

Serial No. 10001 and Higher (BVW-D75)

Serial No. 10001 and Higher (BVW-D75PS)

For the customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: Using this unit at a voltage other than 120 V may require the use of a different line cord or attachment plug, or both.
To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

For customers in Canada
This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada
Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

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Introduction — About This Manual

This manual is a guidebook for users of the BVW-D75/D75PS videocassette recorder. The introduction discusses the purpose and organization of the manual. Reading it first will help you decide which of the other chapters you should read most carefully, depending on your degree of experience with professional VTRs.

Purpose of This Manual

This manual contains all the information you need to operate the BVW-D75/D75PS videocassette recorder (called "the VTR" in this manual), including the names and functions of the various component parts, details of settings and adjustments, and the procedures to follow for recording, playback and editing.

Intended Audience for This Manual

The BVW-D75/D75PS is designed for use principally by professional VTR operators working in broadcasting or production houses. This operation manual therefore assumes a basic understanding of VTR and broadcasting technology, and some experience with professional video equipment.

If you are used to operating this type of VTR, read Chapter 2 "Location and Function of Parts and Controls" and then refer to other chapters as necessary. Regardless of your degree of experience, however, Chapter 1 "Overview" is essential reading, to ensure that you are aware of the many features of the VTR.

If you are using this type of VTR for the first time, or have had limited experience with video equipment, you should preferably read through the entire manual.

Organization of This Manual

The following is a brief summary of the chapters and appendix in this manual. The opening page of each chapter also gives a summary of the contents of that chapter.

Chapter 1 Overview
Describes the principal features and functions of the VTR.

Chapter 2 Location and Function of Parts and Controls
Gives the names and functions of the controls and other parts.

Chapter 3 Setting Up the VTR
Describes connections of external equipment and reference signals, initial settings and handling of videocassettes.

Chapter 4 Recording
Explains preparation for recording, time code settings, and basic recording operations.

Chapter 5 Playback
Describes preparation for playback, normal speed playback, jog and shuttle playback, capstan override playback, and DMC playback.

Chapter 6 Editing
Explains basic and advanced automatic editings, and also manual editing.

Appendix
- **Head Cleaning**
  Gives information about video and audio headcleaning.
- **Moisture Condensation**
  Describes how to cope with moisture condensation on the head drum.
- **Superimposed Characters**
  Gives the meaning of characters superimposed on the monitor screen.
- **Specifications**
  Gives general specifications, and the principal specifications of the video and audio systems.
- **Glossary**
  Explains technical terms related to video equipment.

Index
An aid to finding the information you need about any of the parts, adjustment, operation or functions of the VTR.

Page Formats

This manual uses the following formats to describe operating procedures and present related information and cross references.

Operating procedures

Control and switch numbers in the illustrations correspond to the step numbers explained in the text. Switches and indicators which you may have to use or watch during operation are also shown in illustrations.

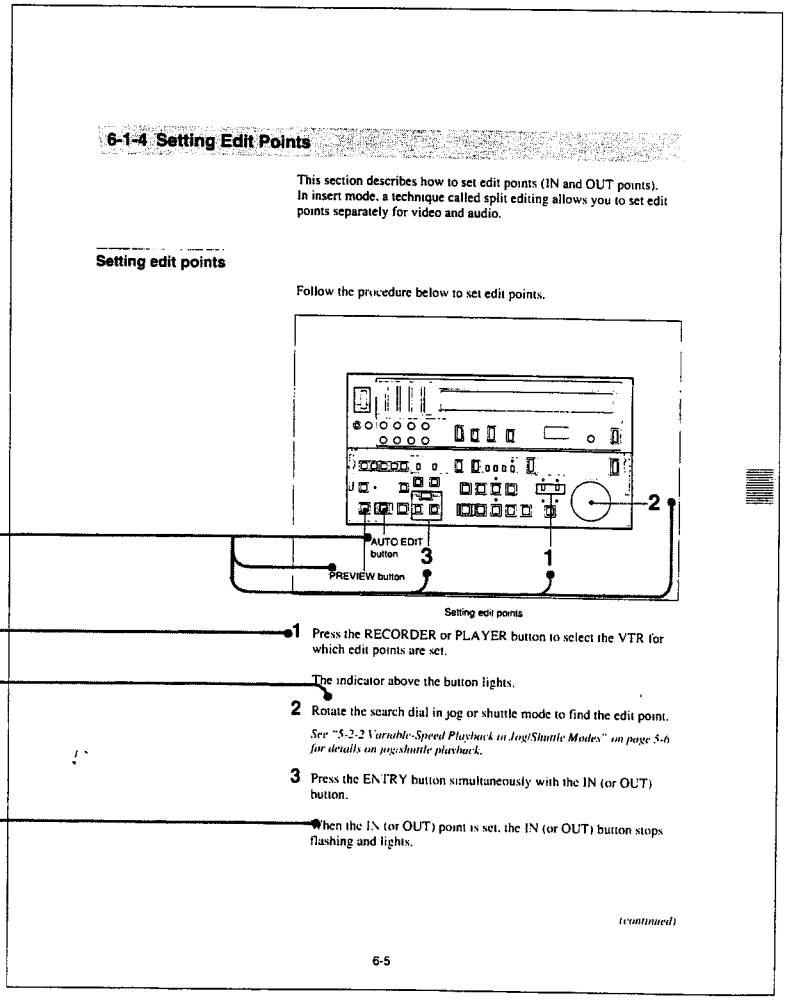
Example

Controls and switches used in the steps described below

Step number

Operation

Result of the operation or information related to operation



6-1-4 Setting Edit Points

This section describes how to set edit points (IN and OUT points). In insert mode, a technique called split editing allows you to set edit points separately for video and audio.

Setting edit points

Follow the procedure below to set edit points.

Setting edit points

1 Press the RECORDER or PLAYER button to select the VTR for which edit points are set.

The indicator above the button lights.

2 Rotate the search dial in jog or shuttle mode to find the edit point.

See "5-2-2 Variable-Speed Playback in Jog/Shuttle Modes" on page 5-6 for details on jog/shuttle playback.

3 Press the ENTRY button simultaneously with the IN (or OUT) button.

When the IN (or OUT) point is set, the IN (or OUT) button stops flashing and lights.

(continued)

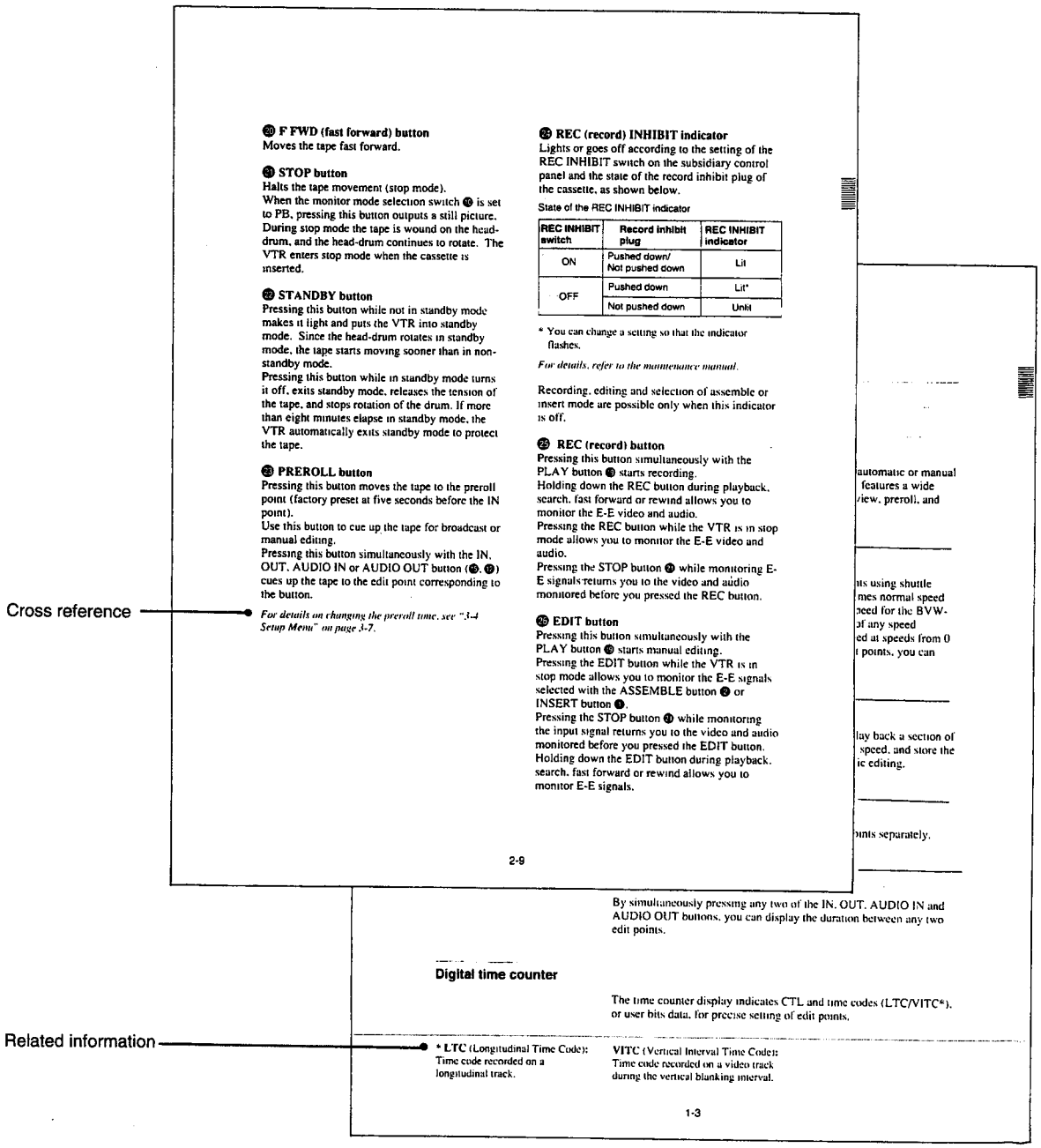
6-5

Description format for operating procedure

Related information and cross references

Information, such as definitions of technical terms, is given as footnotes.
Cross references are printed in italics.

Example



⑳ F FWD (fast forward) button
Moves the tape fast forward.

㉑ STOP button
Halts the tape movement (stop mode).
When the monitor mode selection switch ⑭ is set to PB, pressing this button outputs a still picture.
During stop mode the tape is wound on the head-drum, and the head-drum continues to rotate. The VTR enters stop mode when the cassette is inserted.

㉒ STANDBY button
Pressing this button while not in standby mode makes it light and puts the VTR into standby mode. Since the head-drum rotates in standby mode, the tape starts moving sooner than in non-standby mode.
Pressing this button while in standby mode turns it off, exits standby mode, releases the tension of the tape, and stops rotation of the drum. If more than eight minutes elapse in standby mode, the VTR automatically exits standby mode to protect the tape.

㉓ PREROLL button
Pressing this button moves the tape to the preroll point (factory preset at five seconds before the IN point).
Use this button to cue up the tape for broadcast or manual editing.
Pressing this button simultaneously with the IN, OUT, AUDIO IN or AUDIO OUT button (⑮, ⑰) cues up the tape to the edit point corresponding to the button.

Cross reference → *For details on changing the preroll time, see "3-4 Setup Menu" on page 3-7.*

㉔ REC (record) INHIBIT indicator
Lights or goes off according to the setting of the REC INHIBIT switch on the subsidiary control panel and the state of the record inhibit plug of the cassette, as shown below.

State of the REC INHIBIT indicator

REC INHIBIT switch	Record inhibit plug	REC INHIBIT indicator
ON	Pushed down/ Not pushed down	Lit
OFF	Pushed down	Lit*
	Not pushed down	Unlit

* You can change a setting so that the indicator flashes.

For details, refer to the maintenance manual.

Recording, editing and selection of assemble or insert mode are possible only when this indicator is off.

㉕ REC (record) button
Pressing this button simultaneously with the PLAY button ⑱ starts recording.
Holding down the REC button during playback, search, fast forward or rewind allows you to monitor the E-E video and audio.
Pressing the REC button while the VTR is in stop mode allows you to monitor the E-E video and audio.
Pressing the STOP button ㉑ while monitoring E-E signals returns you to the video and audio monitored before you pressed the REC button.

㉖ EDIT button
Pressing this button simultaneously with the PLAY button ⑱ starts manual editing.
Pressing the EDIT button while the VTR is in stop mode allows you to monitor the E-E signals selected with the ASSEMBLE button ㉗ or INSERT button ㉘.
Pressing the STOP button ㉑ while monitoring the input signal returns you to the video and audio monitored before you pressed the EDIT button.
Holding down the EDIT button during playback, search, fast forward or rewind allows you to monitor E-E signals.

2-9

automatic or manual
features a wide
view, preroll, and

its using shuttle
mes normal speed
peed for the BVW-
of any speed
ed at speeds from 0
points, you can

lay back a section of
speed, and store the
ic editing.

oints separately.

By simultaneously pressing any two of the IN, OUT, AUDIO IN and AUDIO OUT buttons, you can display the duration between any two edit points.

Digital time counter

The time counter display indicates CTL and time codes (LTC/VITC*), or user bits data, for precise setting of edit points.

Related information → * **LTC** (Longitudinal Time Code): Time code recorded on a longitudinal track.

VITC (Vertical Interval Time Code): Time code recorded on a video track during the vertical blanking interval.

1-3

Presentation of related information and cross references

Referred Manual

In addition to this operation manual, the BVW-D75/D75PS is supplied with a maintenance manual, which explains how to use self-diagnosis functions, the extended setup menus, and gives details of the internal circuits and switch settings.

Chapter 1 Overview

The purpose of this chapter is to give an overview of the features of the BVW-D75/D75PS.

1-1 Outline of the BVW-D75/D75PS 1-1
1-2 Features 1-2
1-2-1 Betacam SP Format 1-2
1-2-2 Variety of Editing Functions 1-3
1-2-3 Advanced Recording and Playback Functions 1-4
1-2-4 Ease of Operation Suitable for Editing 1-6

1-1 Outline of the BVW-D75/D75PS

The BVW-D75/D75PS is a "Betacam SP (Superior Performance)" videocassette recorder equipped with a serial interface for component digital video signals and digital audio signals. As video input/output signals, you may use D-1 format serial digital signals only. As audio input/output signals, you can choose from V/A serial, AES/EBU format or analog signals.
Combined with a digital routing switcher and other component digital VTR, the Betacam SP format can be used as part of a digital VTR system.

1-2 Features

1-2-1 Betacam SP Format

Features of the Betacam SP format

Compared to the Betacam format, Betacam SP offers superior video and audio quality, with improved signal-to-noise ratios, better frequency response, and superior waveform and detail reproduction characteristics.

Improved video quality offered by metal tape

Using metal tape makes the best use of the Betacam SP format. Two channels of frequency-modulated audio signals can be recorded on a chrominance track (AFM recording), in addition to the conventional two channels of audio signals recorded on a longitudinal track (LNG). AFM recording offers a wide dynamic range of 85 dB, for high performance under demanding recording conditions. Metal tape offers excellent frequency response and low-distortion even in longitudinal recording.
When using oxide tapes, signals are recorded in the conventional Betacam format.
The VTR automatically detects whether the loaded tape is metal or oxide.

Compatible with conventional Betacam VTR

Regardless of tape type, metal or oxide, a cassette tape recorded with this VTR can be played back on a conventional Betacam VTR. In this case, however, Betacam SP features are not available.
Cassette tapes recorded with a conventional Betacam VTR can also be played back on this VTR.

1-2-2 Variety of Editing Functions

Variety of editing functions

You can connect two BVW-D75/D75PS units for automatic or manual editing in assemble or insert mode. The VTR also features a wide variety of editing functions, including preview, review, preroll, and setting or trimming of edit points.

Quick access to edit points

The search dial gives you quick access to edit points using shuttle mode, with 20 speeds (ranging from ±1/30 to 35 times normal speed for the BVW-D75 and ±1/30 to 42 times normal speed for the BVW-D75PS), and jog mode, which gives you a choice of any speed between 0 and ±1. Color pictures may be monitored at speeds from 0 to ±10 times normal speed. Once you find the edit points, you can delete unnecessary edit points with ease.

Dynamic Motion Control (DMC) editing

Using a Dynamic Tracking (DT)® head, you can play back a section of the edit at speeds between –1 and +3 times normal speed, and store the speed variation in memory for later use in automatic editing.

Split editing

In insert mode, you can set audio and video edit points separately.

Edit duration display

By simultaneously pressing any two of the IN, OUT, AUDIO IN and AUDIO OUT buttons, you can display the duration between any two edit points.

Digital time counter

The time counter display indicates CTL and time codes (LTC/VITC*), or user bits data, for precise setting of edit points.

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* LTC (Longitudinal Time Code): Time code recorded on a longitudinal track.

VITC (Vertical Interval Time Code): Time code recorded on a video track during the vertical blanking interval.

1-2-3 Advanced Recording and Playback Functions

Noiseless playback using DT head

Using a special purpose DT head for playback, you can perform noiseless playback at 54 speeds ranging from –1 to +3 times normal speed, including still picture playback.

Video and audio confidence heads

Video and audio confidence heads enable you to play back video and audio signals on channels 1 and 2 while recording, in order to check the quality of recording.

Built-in time code generator and reader

The built-in time code generator allows you to record LTC/VITC time codes or user bits together with video or audio signals.
Time codes and user bits are read back by the built-in time code reader during playback.

Computer servo system

Computer-controlled servo motors directly drive the drum, capstan and two reels, for quick and accurate tape access.

Capstan override function

You can adjust playback phase by ±20% so that two VTRs playing back the same program operate in synchronization.

Limiter circuits, audio mixer and independent volume control

You can record audio signals on channels 1 and 2 using audio limiter circuits, preventing distortion by excessive audio input. You can also mix audio signals on channels 1 and 2 and record a mixed signal on either channel 1 or 2. (Audio limiter circuits and audio mixer function are not available for channels 3 and 4.) The recording and playback levels of the four audio channels can be set independently.

Audio noise reduction

The VTR is equipped with a Dolby NR* C noise reduction system. For AFM audio recording on channels 3 and 4, Betacam noise reduction circuitry (fixed emphasis, 1 to 2 logarithmic compression/ expansion) is employed. This circuitry cannot be turned on and off.

Built-in time base corrector (TBC)

A built-in TBC offers stable video pictures free from skew and color deviations, for high-quality transmission of playback video.

*** Dolby NR**
Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY" and the double-D symbol ⧈ are trademarks of Dolby Laboratories Licensing Corporation.

1-2-4 Ease of Operation Suitable for Editing

Set up menus

You can make initial settings for the interface between connected equipment and operation modes of the VTR with simple operations on the system control panel.

Easy-to-use front panel

All important controls are located on the easy-to-use front panel. The panel can be tilted for the operator's convenience.

Compact, lightweight, low power consumption

You can take the VTR out of the studio for use in an outside broadcast van or in a variety of Electronic Field Production (EFP) assignments.

Remote control operation

The BVW-D75/D75PS can be controlled from an external remote controller via the standard RS-422A serial interface. Using the REMOTE 1-IN/OUT connectors as remote control terminals, you can make loop-through connection between two or more BVW-D75/D75PS units or other VTRs equipped with 9-pin remote control terminals, and operate them simultaneously.
An optional BVR-75A control panel can be connected to the KY REMOTE connector on the rear panel for extension of the control panel.

Digital hours meter

Four different kinds of hour values can be displayed; total elapsed time since the VTR was turned on, total number of threadings and unthreadings, total tape running time and total drum revolutions.

Superimposed output

Time codes, tape speed and operation status of the VTR can be superimposed on video signals output from the MONITOR OUTPUT connectors. Superimposition can be turned on and off as required.

Self-diagnosis

In the event of a malfunction, the VTR performs self-diagnosis and displays an error code in the time counter display.

Easy-to-maintain plug-in boards

The VTR was designed using plug-in circuit boards for ease in servicing and inspection.

Mounts in standard 19-inch rack

The unit can be mounted in an EIA standard 19-inch rack.

For details on rack mounting, refer to the maintenance manual.

Chapter 2
Location and Function of Parts and Controls

This chapter gives a brief description of the purposes and functions of the principal parts of the VTR.

2-1 Control Panel 2-1
2-1-1 Upper Control Panel 2-2
2-1-2 Lower Control Panel (Editing Section) 2-5
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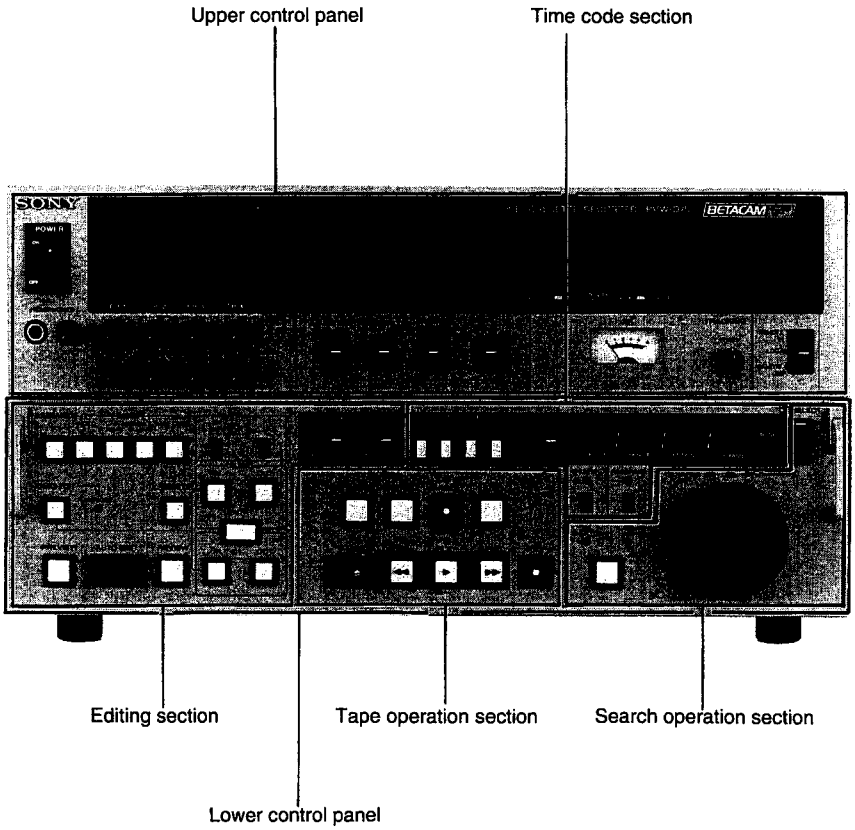
2-2 Subsidiary Control Panel 2-14
2-3 System Control Panel 2-17
2-4 Connector Panel 2-20

2-1 Control Panel

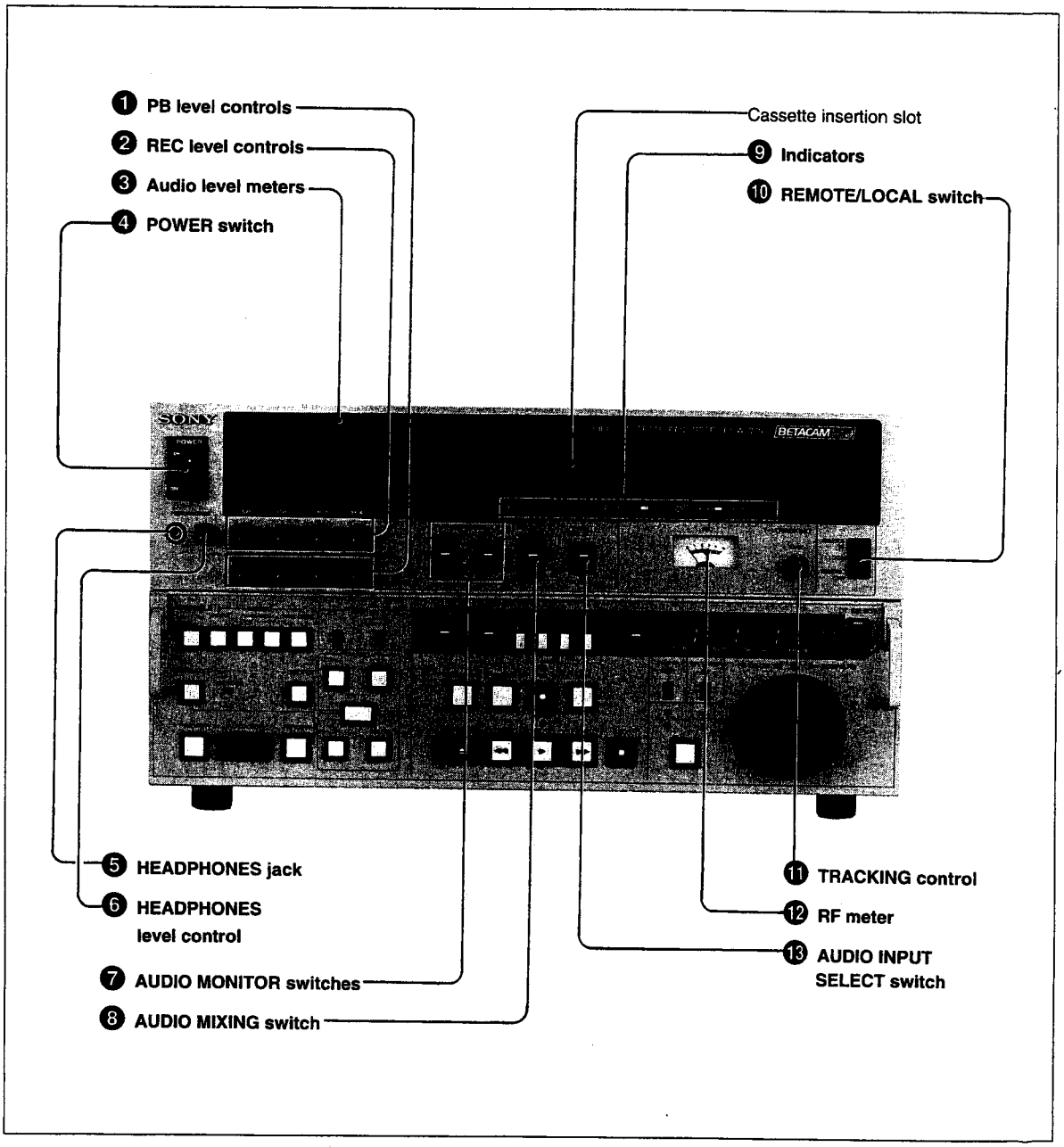
The control panel consists of the following sections.

- Upper control panel
- Lower control panel: editing section, tape operation section, search operation section, time code section



Control panel

2-1-1 Upper Control Panel



Upper control panel

❶ PB (playback) level controls

Adjust audio playback levels independently for channels 1 to 4.
To adjust the playback level, put the VTR in playback mode, pull out the control and adjust while monitoring the audio level meter ❸. When these controls are pushed in, the audio playback level is fixed at the factory preset level and cannot be adjusted.

For details on changing the preset playback level, refer to the maintenance manual.

❷ REC (recording) level controls

Adjust audio recording levels independently for each of channels 1 to 4.
To adjust the recording level, put the VTR in E-E mode*, pull out the control and adjust while monitoring the audio level meter ❸. When these controls are pushed in, the recording level is fixed at the factory preset level (0 VU or –9 dB peak level for input signal of +4 dBm) and cannot be adjusted.

For details on changing the preset recording level, refer to the maintenance manual.

❸ Audio level meters

Indicate recording levels in record or E-E mode, and playback levels in playback or CONFI mode. Indication can be either in VU or peak level. These meters are factory set to indicate VU levels.

For details on changing the unit of indication, refer to the maintenance manual.

❹ POWER switch

Set the switch to ON to power on the VTR. The audio level meters ❸, RF meter ⓬ and time counter display ㉟ will light up.

❺ HEADPHONES jack

Connect 8-ohm stereo headphones to monitor the audio during recording, playback and editing. Adjust the volume level with the HEADPHONES level control ❻.

❻ HEADPHONES level control

Controls the level of the audio output from the HEADPHONES jack ❺ and the AUDIO SELECTED OUT connectors on the connector panel.

❼ AUDIO MONITOR switches

Select the audio signal output from the HEADPHONES jack ❺ and AUDIO SELECTED OUT connectors on the connector panel as shown in the table below.

Setting of the AUDIO MONITOR switches and output audio signals

Setting of AUDIO MONITOR switches		Output audio signal
CH-1/3	LNG	Channel 1
	AFM	Channel 3
ST	LNG	Stereo (channels 1 and 2)
	AFM	Stereo (channels 3 and 4)
CH-2/4	LNG	Channel 2
	AFM	Channel 4

Note

AFM audio is not output when the oxide tape is used, even with the switch set to AFM.

❽ AUDIO MIXING switch

Selects the channel on which channels 1 and 2 audio input signals are mixed and recorded.

TO CH-1: Audio input signals on channels 1 and 2 are mixed, and recorded on channel 1. Channel 2 audio input signals are recorded unchanged on channel 2.

OFF: Audio signals are not mixed. Normally set to this position.

TO CH-2: Audio input signals on channels 1 and 2 are mixed, and recorded on channel 2. Channel 1 audio input signals are recorded unchanged on channel 1.

This switch is also enabled when the VTR is in E-E mode.

*** E-E-mode**
Electric-to-Elecric mode. A mode in which signals output from a VTR pass through internal electric circuits, but not through magnetic conversion circuits such as heads and tapes.

❾ Indicators

Light or flash to show the status of the VTR.

VTR status indicators

Indicator	VTR status
DOLBY NR	Lights while the Dolby noise reduction circuitry is in operation.
LTC	Playback mode: Lights if LTC signals are recorded on the tape. Record/E-E mode: Lights. However, does not light if the VTR is operating in external input mode and LTC signals are not supplied.
VITC	Playback mode: Lights if VITC signals are recorded on the tape. Record/E-E mode: Lights if VITC signals are contained in the input video signals, or if the VITC switch on the system control panel is set to ON.
AUTO OFF	Lights to indicate tape transport trouble, such as moisture condensation on the head-drum.
DIGITAL INPUT VIDEO	Lights while serial digital video signals are being input.
DIGITAL INPUT AUDIO	Lights while serial digital or AES/EBU format audio signal are being input. Flashes if the input signals are not normal.
REF	Lights when the TBC REF switch on the system control panel is set to REF and reference video signals are being input.

❿ REMOTE/LOCAL switch

Determines a device to control the VTR when external equipment is connected to the REMOTE 1-IN or REMOTE 2 connector.

REMOTE 1 (9P): External equipment connected to the 9-pin REMOTE 1-IN connector controls the VTR. The 9P indicator lights.

LOCAL: The control panel of the VTR controls the VTR.

REMOTE 2 (36P): External equipment connected to the 36-pin REMOTE 2 connector controls the VTR. The 36P indicator lights.

When controlling the VTR from the external equipment (REMOTE 1 or 2), all of the tape operation buttons and editing buttons of the VTR are disabled, except for STOP and EJECT buttons.

⓫ TRACKING control

Adjusts the tape tracking.

If noise appears in the playback picture, adjust this control so that the pointer of the RF meter ⓬ indicates the maximum level. Normally, and especially during recording, set this control to FIXED.

⓬ RF (radio frequency) meter

Indicates the tape tracking status (playback RF signal level) during playback.

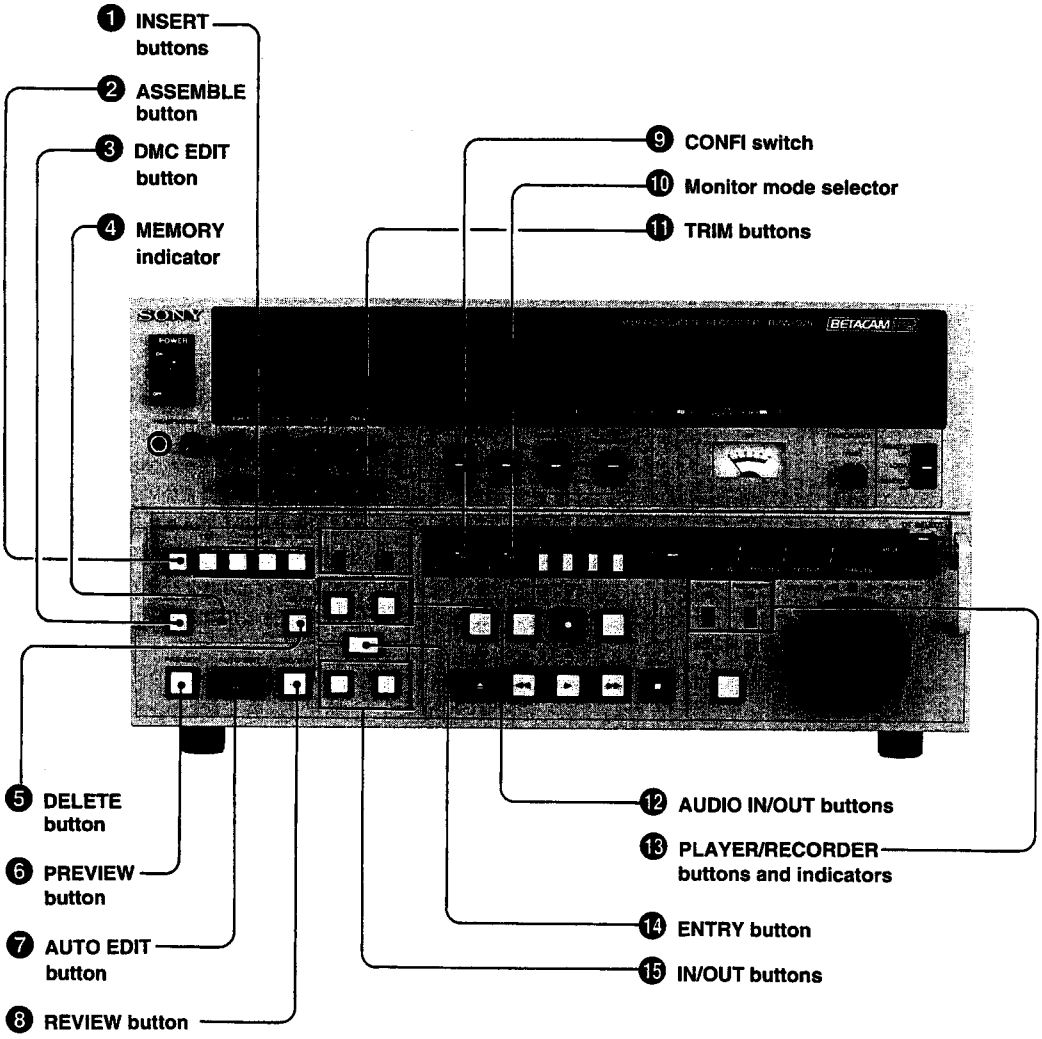
⓭ AUDIO INPUT SELECT switch

Selects audio input signal.

DIGITAL: Serial digital or AES/EBU format audio signal

ANALOG: Analog audio signal

2-1-2 Lower Control Panel (Editing Section)



Lower control panel (editing section)

❶ INSERT buttons

Select the input signal (VIDEO, AUDIO CH-1, CH-2, or TIME CODE) for insert edit.
These buttons light when pressed and go off when pressed again.

❷ ASSEMBLE button

Selects assemble edit mode.
This button lights when pressed and goes off when pressed again.

❸ DMC EDIT button

Performs DMC playback or DMC editing at speeds between –1 and +3 times normal speed as stored in memory.

❹ MEMORY indicator
Flashes to show that playback speeds are being stored in memory while performing DMC playback or DMC editing using the DMC EDIT button ❸. Lights when the memorization is completed.

❺ DELETE button
Deletes an edit point or exits DMC mode. Pressing this button simultaneously with a lighting IN, OUT, AUDIO IN or AUDIO OUT button (⓯, ⓬) deletes the edit point corresponding to that button. The button pressed with this button will go off or flash. If it flashes, another edit point should be set.

❻ PREVIEW button
Lets you view the results of the edit on the recorder monitor without actually recording the edit on tape.
If an IN point is not set when you press this button, the current tape address is set as the IN point before the preview starts.

❼ AUTO EDIT button
Starts automatic editing.
If an IN point is not set when you press this button, the current tape address is set as the IN point before the automatic editing starts.

❽ REVIEW button
Reviews a section of the edit on the recorder monitor.

❾ CONFI (confidence) switch
Plays back the video and the longitudinal audio currently being recorded.

❿ Monitor mode selector
Selects the signal output to the monitor while the VTR is in fast forward, rewind, stop or standby mode.
PB: Playback signal
PB/EE: Input signal

⓫ TRIM buttons
Change an edit point by one frame.
Press either of the TRIM buttons simultaneously with the IN, OUT, AUDIO IN, or AUDIO OUT button (⓯, ⓬). Pressing the + button advances the edit point by one frame, and pressing the – button moves it back one frame.
Pressing the + or – button simultaneously with the PLAY button ⓳ changes the playback speed by up to ±8% (capstan override function).

⓬ AUDIO IN/OUT buttons
Set audio IN and OUT edit points separately from video edit points.
Press one of these buttons simultaneously with the ENTRY button ⓮ to set an audio IN/OUT point. If you press one of these buttons after setting an audio edit point, the corresponding time data will be shown in the time counter display ㉟.

⓭ PLAYER/RECORDER buttons and indicators

Select which of the VTRs is to be controlled by the editing buttons and tape operation buttons of this VTR when using this VTR as a recorder with an external player VTR connected to the REMOTE 1-IN/OUT connectors.

PLAYER button: When this button is pressed, the indicator lights to show that the editing buttons and tape operation buttons of this VTR control the external player VTR only.

RECORDER button: When this button is pressed, the indicator lights to show that the editing buttons and tape operation buttons of this VTR control the recorder VTR (this VTR) only.

These buttons have no effect when using the VTR alone.

⓮ ENTRY button

Sets an edit point.

Press this button simultaneously with the IN, OUT, AUDIO IN or AUDIO OUT button (⓯, ⓬). The IN/OUT buttons are for setting video IN/OUT edit points and the AUDIO IN/OUT buttons are for audio IN/OUT edit points. The button pressed with this button lights.

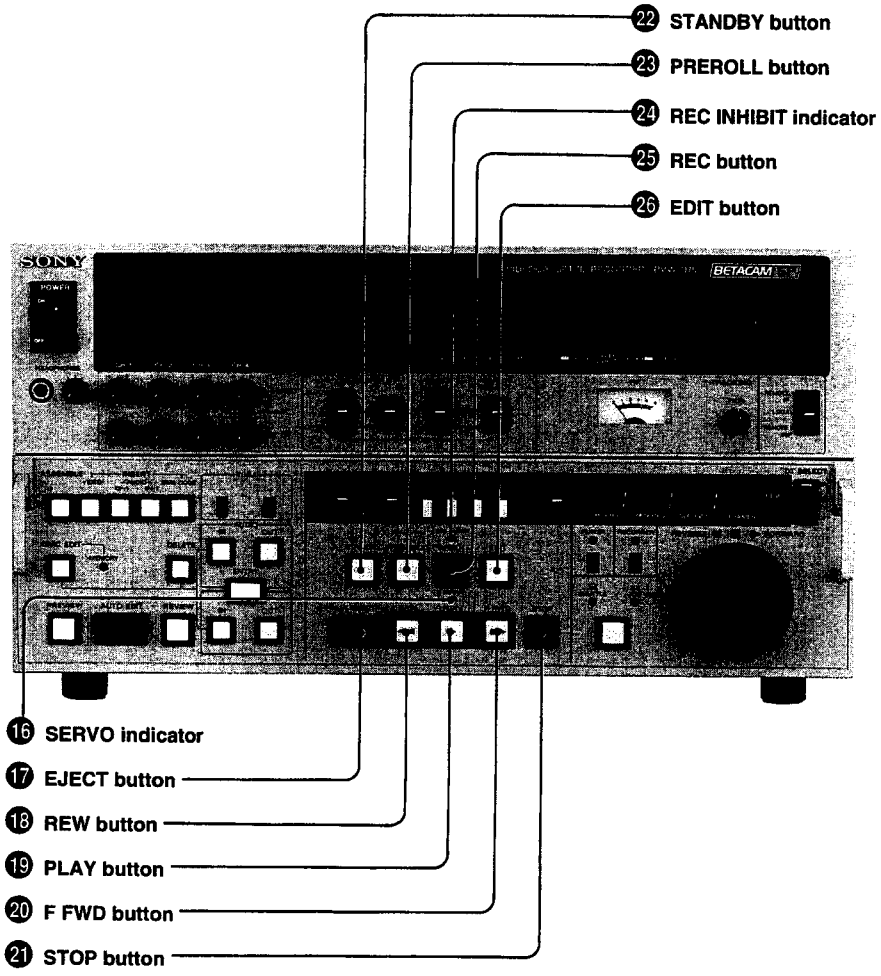
⓯ IN/OUT buttons

Set an IN/OUT edit point.

Press one of these buttons simultaneously with the ENTRY button ⓮.

If you press one of these buttons after setting an edit point, the corresponding time data will be shown in the time counter display ㊱.

2-1-3 Lower Control Panel (Tape Operation Section)



Lower control panel (tape operation section)

⑯ SERVO indicator
Lights when the drum servo and capstan servo lock.

⑰ EJECT button
Ejects the cassette. Resets the display if CTL codes are indicated in the time counter display ㊱.

⑱ REW (rewind) button
Rewinds the tape.

⑲ PLAY button
Starts playback.
Pressing this button simultaneously with the REC button ㉕ or EDIT button ㉖ starts recording or manual editing. Pressing this button during recording or manual edit puts the VTR into playback mode.

⑳ F FWD (fast forward) button
Moves the tape fast forward.

㉑ STOP button
Halts the tape movement (stop mode).
When the monitor mode selector ⑩ is set to PB, pressing this button outputs a still picture. During stop mode the tape is wound on the head-drum, and the head-drum continues to rotate. The VTR enters stop mode when the cassette is inserted.

㉒ STANDBY button
Pressing this button while not in standby mode makes it light and puts the VTR into standby mode. Since the head-drum rotates in standby mode, the tape starts moving sooner than in non-standby mode.
Pressing this button while in standby mode turns it off, exits standby mode, releases the tension of the tape, and stops rotation of the drum. If more than eight minutes elapse in standby mode, the VTR automatically exits standby mode to protect the tape.

㉓ PREROLL button
Pressing this button moves the tape to the preroll point (factory preset at five seconds before the IN point).
Use this button to cue up the tape for broadcast or manual editing.
Pressing this button simultaneously with the IN, OUT, AUDIO IN or AUDIO OUT button (⑮, ⑫) cues up the tape to the edit point corresponding to the button.

For details on changing the preroll time, see "3-4 Setup Menu" on page 3-7.

㉔ REC (record) INHIBIT indicator
Lights or goes off according to the setting of the REC INHIBIT switch on the subsidiary control panel and the state of the record inhibit plug of the cassette, as shown below.

State of the REC INHIBIT indicator

REC INHIBIT switch	Record inhibit plug	REC INHIBIT indicator
ON	Pushed down/ Not pushed down	Lit
OFF	Pushed down	Lit*
	Not pushed down	Unlit

* You can change a setting so that the indicator flashes.

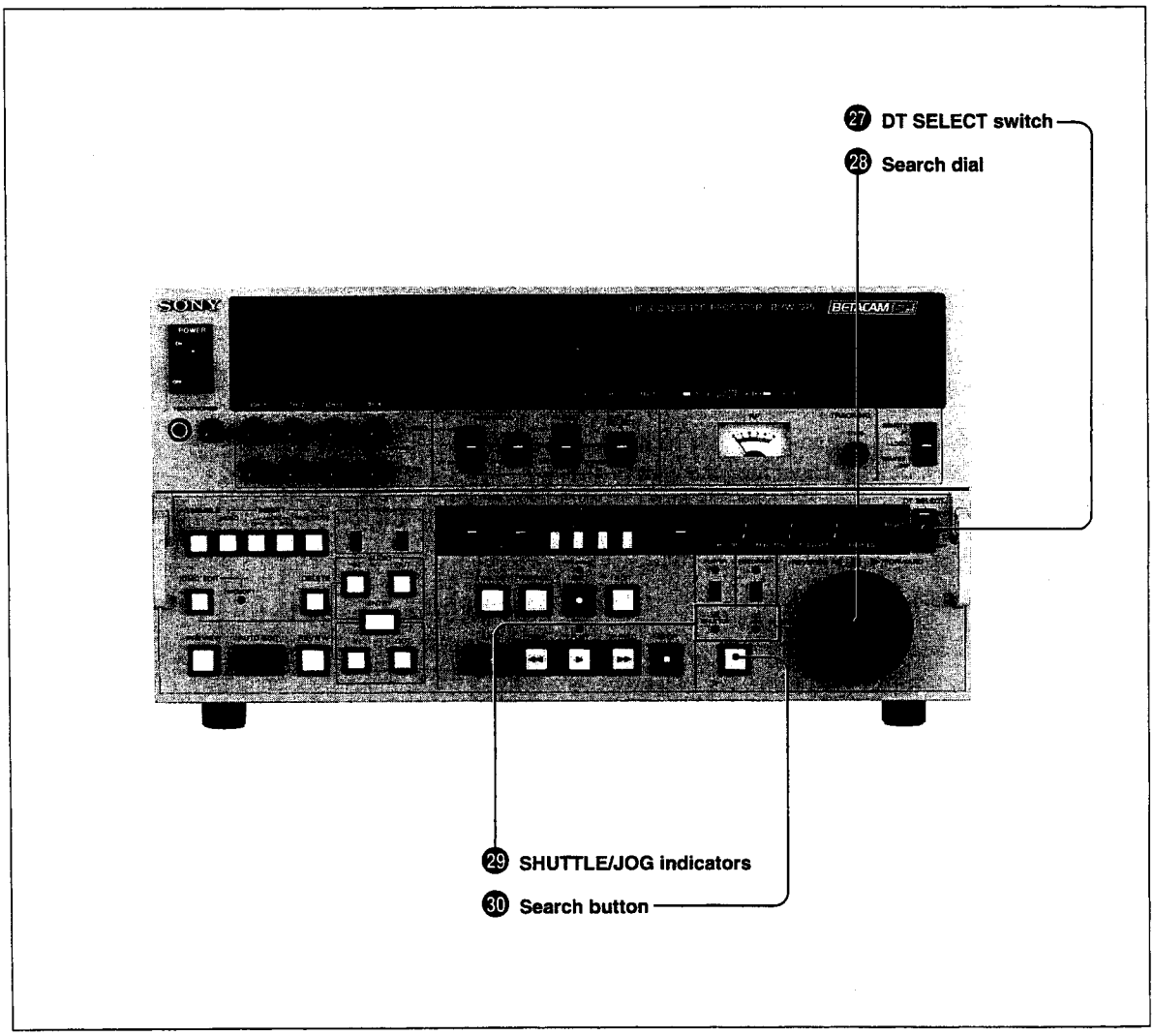
For details, refer to the maintenance manual.

Recording, editing and selection of assemble or insert mode are possible only when this indicator is off.

㉕ REC (record) button
Pressing this button simultaneously with the PLAY button ⑲ starts recording.
Holding down the REC button during playback, search, fast forward or rewind allows you to monitor the E-E video and audio.
Pressing the REC button while the VTR is in stop mode allows you to monitor the E-E video and audio.
Pressing the STOP button ㉑ while monitoring E-E signals returns you to the video and audio monitored before you pressed the REC button.

㉖ EDIT button
Pressing this button simultaneously with the PLAY button ⑲ starts manual editing.
Pressing the EDIT button while the VTR is in stop mode allows you to monitor the E-E signals selected with the ASSEMBLE button ❷ or INSERT button ❶.
Pressing the STOP button ㉑ while monitoring the input signal returns you to the video and audio monitored before you pressed the EDIT button.
Holding down the EDIT button during playback, search, fast forward or rewind allows you to monitor E-E signals.

2-1-4 Lower Control Panel (Search Operation Section)



Lower control panel (search operation section)

㉗ DT (Dynamic Tracking head) SELECT switch

Selects playback head.

SRC: DT head is used for playback, and noiseless playback at speeds ranging from –1 to +3 times normal speed is possible. When the playback speed is out of this range, noise bars appear on the monitor screen.

VAR: DT head is used for playback, and noiseless playback at speeds ranging from –1 to +3 times normal speed is possible. Playback is not possible when the speed is out of this range.

OFF: R/P (Record/Playback) head is used for playback.

㉘ Search dial

Searches for edit points.

Rotate it clockwise for forward playback (▷ indicator lit) or counterclockwise for reverse playback (◁ indicator lit). While the VTR is in stop mode, the □ indicator lights.

If you press the dial, the VTR toggles between shuttle and jog modes, and either SHUTTLE or JOG indicator ㉙ lights to indicate the current mode.

Shuttle mode: Depending on the setting of the DT SELECT switch ㉗, the dial functions as follows:

SRC or OFF: Playback speed corresponds to the rotation angle of the dial (–35 to +35 times normal speed for BVW-D75, –42 to +42 times normal speed for BVW-D75PS). The dial clicks at the positions corresponding to 0, –10 and +10 times normal speed. When the dial is at the center click position, the monitor shows a still picture.

VAR: Playback speed is –1 time normal speed when the dial is rotated fully counterclockwise, and +3 times normal speed when rotated fully clockwise.

Jog mode: The dial does not click at any position. Playback speed corresponds to the rotation speed of the dial (0 to ±1 time normal speed).

Capstan override mode: Rotating the dial while holding down the PLAY button ⑲ changes the playback speed by up to ±20%.

After turning on the power, always set the search dial to the center position (where the □ indicator lights).

㉙ SHUTTLE/JOG indicators

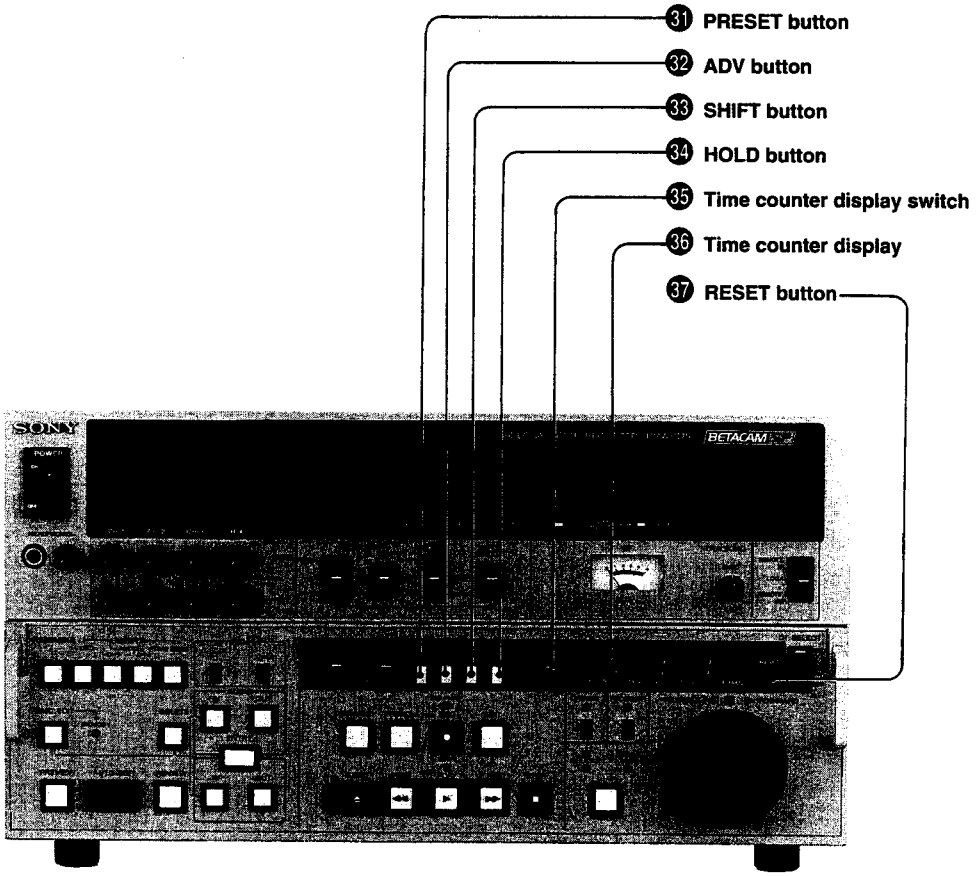
One of these indicators lights to show the current search mode.

㉚ Search button

Starts search mode playback.

Pressing this button in shuttle mode starts playback at the speed determined by the rotation angle of the search dial ㉘.

2-1-5 Lower Control Panel (Time Code Section)



Lower control panel (time code section)

31 PRESET button
Registers the time code or user bits set with the ADV button 32 and SHIFT button 33.

32 ADV (advance) button
Increments the flashing digit selected by the SHIFT button 33 when setting the time code or user bits. Holding down the ADV button increments the digit continuously.

㉝ SHIFT button

Selects the digit to change when setting the time code or user bits. The selected digit flashes. Each press of this button shifts the flashing digit to the adjacent digit on the right. Holding down the SHIFT button shifts the flashing digit continuously.

㉞ HOLD button

Halts the progress of the time code displayed in the time counter display ㊱ and turns the indicator on. Pressing the button again resumes progress of the time code and turns the indicator off.

When setting the time code or user bits, first halt the progress of the time code using this button.

㉟ Time counter display switch

Selects the type of time data displayed in the time counter display ㊱ and used for indicating editing tape address.

Time counter display switch, time data displayed and editing tape address

Setting of time counter display switch	Time data displayed	Editing tape address
CTL	CTL	CTL
TC	Time code	Time code
U-BIT	User bits	Time code

When the remote switch on the upper control panel is set to REMOTE 1, the time data displayed and editing tape address are determined by the external equipment connected to the REMOTE 1 connector, regardless of the setting of this switch.

㊱ Time counter display

Displays the following time data according to the setting of the time counter display switch ㉟.

CTL: Tape running time in hours, minutes, seconds and frames, as determined by counting the CTL signal currently being recorded on the tape or read from the tape currently played back.

TC: Time code currently being recorded on the tape or read from the tape by the built-in time code reader. Either LTC or VITC time code is displayed, according to the setting of the time code selector on the system control panel.

U-BIT: User bits included in the time code currently being recorded on the tape or read from the tape. User bits included in LTC or VITC time codes are displayed, according to the setting of the time code selector on the system control panel.

For details regarding error codes ("Error-XX") displayed in the time counter display, refer to the maintenance manual.

㊲ RESET button

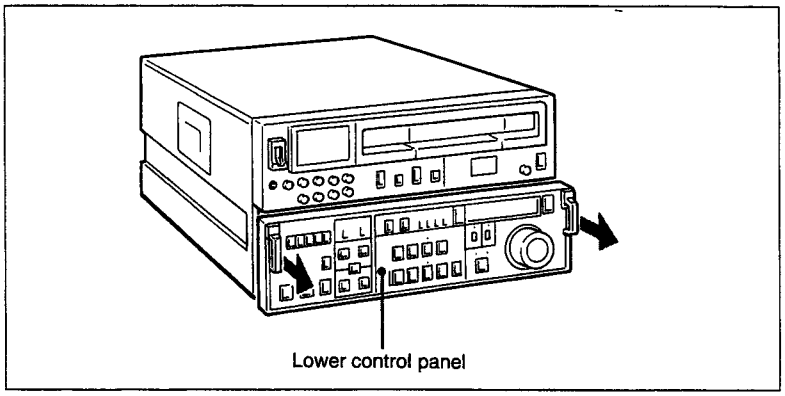
Resets the time counter as follows, according to the setting of the time counter display switch ㉟:

CTL: Sets the CTL display to 0:00:00:00. All currently set edit points will be erased.

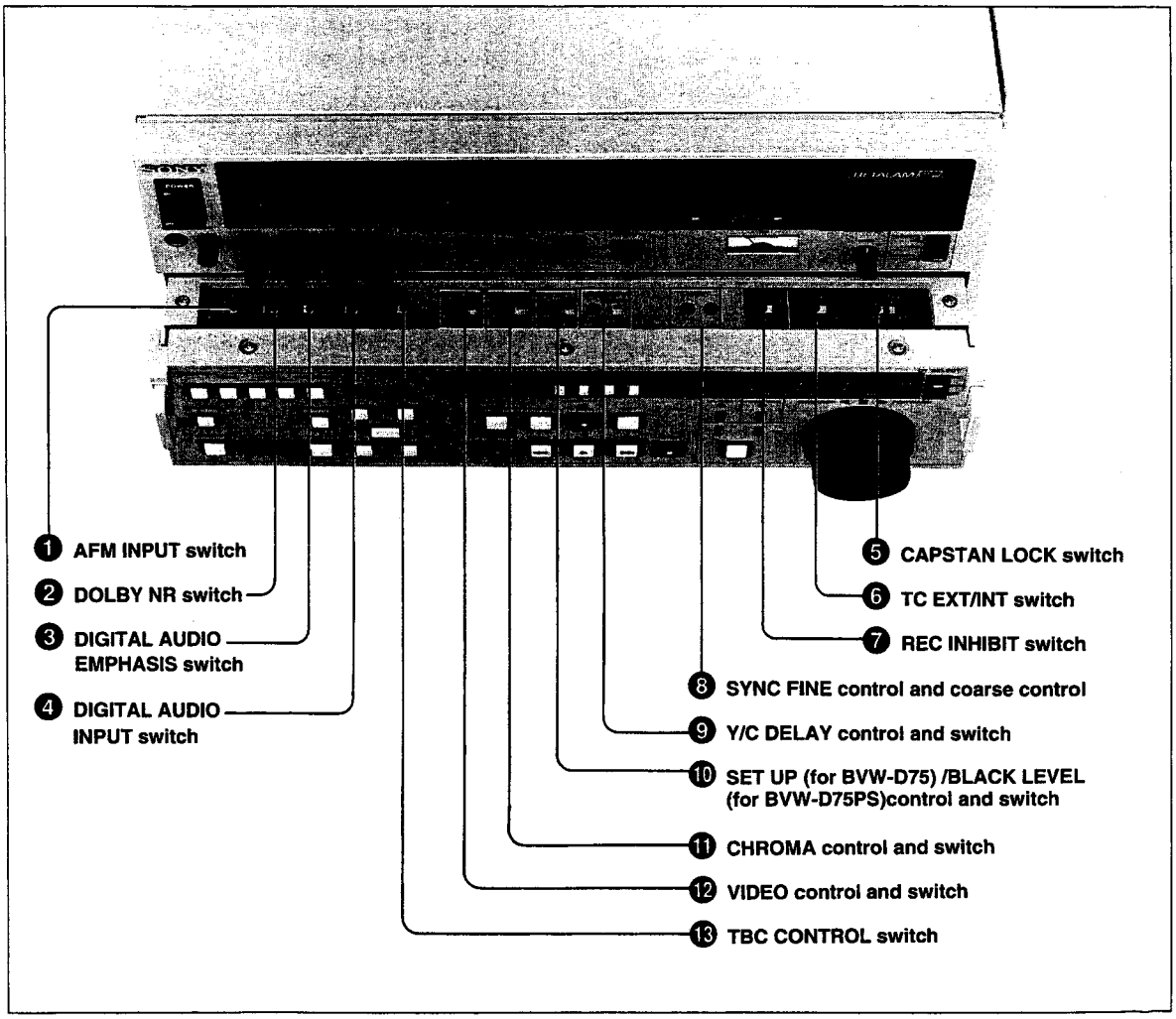
TC or U-BIT: Resets the time code generator and sets the time code to 00:00:00:00 (when set to TC) and user bits to 00000000 (when set to U-BIT). Edit points currently set will not be affected.

2-2 Subsidiary Control Panel

Pull out the lower control panel to access the subsidiary control panel.



How to access the subsidiary control panel


1 AFM INPUT switch
2 DOLBY NR switch
3 DIGITAL AUDIO EMPHASIS switch
4 DIGITAL AUDIO INPUT switch
5 CAPSTAN LOCK switch
6 TC EXT/INT switch
7 REC INHIBIT switch
8 SYNC FINE control and coarse control
9 Y/C DELAY control and switch
10 SET UP (for BVW-D75) /BLACK LEVEL (for BVW-D75PS)control and switch
11 CHROMA control and switch
12 VIDEO control and switch
13 TBC CONTROL switch

Subsidiary control panel

❶ AFM INPUT switch

Selects input audio signals to record on the chrominance track (AFM recording).

CH-1/2: Either analog or digital input signals on channels 1 and 2. The same input signals are recorded on the longitudinal track. Input signals on channels 3 and 4 are not recorded.

CH-3/4: Either analog or digital input signals on channels 3 and 4. Input signals on channels 1 and 2 are recorded on the longitudinal track.

❷ DOLBY NR switch

Turns on and off the Dolby C noise reduction system when using oxide tape.

ON: Dolby NR system is used for playback and recording.

OFF: Dolby NR system is not used.

❸ DIGITAL AUDIO EMPHASIS switch

Set this switch to ON to emphasize output digital audio signals.

❹ DIGITAL AUDIO INPUT switch

Selects input digital audio signals as follows.

AES/EBU: AES/EBU format signals

SERIAL V/A: Serial digital signals

❺ CAPSTAN LOCK switch

When editing or playing back a tape on which decoded component signals are recorded (a tape on which composite input signals were recorded with a Betacam SP VTR), set this switch according to your editing or playback requirements.

For BVW-D75

2FD: Capstan servo locks in units of 2 fields. Since color framing lock is inhibited, there is no phase shift (H-shift) of the output video signal.
Normally set the switch to this position.

2/4FD: Capstan servo locks in units of 2 fields. Based on the decoded information on the tape, the VTR controls the output video phase so that the best frequency response is achieved. The output video phase may shift by up to 140 ns.
Set the switch to this position if you want to edit quickly and obtain high picture quality. However, note that this may cause H-shift problems.

4FD: Capstan servo locks in units of 4 fields. The shift of the output video phase remains constant even when starts and stops are repeated during playback.
Set the switch to this position when continuity of the video phase at edit points is required, or when you execute A-B roll editing.

For BVW-D75PS

2FD: Capstan servo locks in units of 2 fields. Since color framing lock is inhibited, there is no phase shift (H-shift) of the output video signal.
Normally set the switch to this position.

2/4FD: Capstan servo locks in units of 2 fields. Color framing is not inhibited, so the output video phase is unstable unless the capstan lock phase is controlled by an external editing control unit.
Set the switch to this position when an editing control unit equipped with color framing control function is connected to the VTR.

4FD: Capstan servo locks in units of 4 fields. Based on the decoded information on the tape, the VTR controls the output video phase so that the best frequency response is achieved. The output video phase may shift by up to 110 ns.
Set the switch to this position if you want to edit quickly and obtain high picture quality. However, note that this may cause H-shift problems.

8FD: Capstan servo locks in units of 8 fields. The shift of the output video phase remains constant even when starts and stops are repeated during playback.
Set the switch to this position when continuity of the video phase at edit points is required, or when you execute A-B roll editing.

❻ TC EXT/INT (time code external/internal) switch

Determines whether external or internal time code is used.

EXT: Time code input to the TIME CODE IN connector is used.

INT: Time code generated by the built-in time code generator is used.

This switch is factory set to INT.

❼ REC (record) INHIBIT switch
Setting this switch to ON turns on the REC INHIBIT indicator on the lower control panel and inhibits recording, editing and selection of assemble or insert edit mode.
Set this switch to ON when using the VTR for broadcast transmission. Normally set this switch to OFF.

❽ SYNC (sync phase) FINE control and coarse control
Adjust the output sync phase within –1 to +3 µs with respect to the reference input signal.
Use these controls when synchronizing the output phase of the VTR with a reference signal, or using special effects such as fades, wrap and dissolve between two or more VTRs combined with the VTR.
Normally use only the FINE control on the left (adjustment range of up to 300 ns). If the sync phase difference is large, use also the coarse control on the right (adjustment range between –1 and +3 µs).

❾ Y/C DELAY control and switch
Adjust the Y/C delay. Set the Y/C DELAY switch as follows.
MANUAL: When manually adjusting the Y/C delay using the Y/C DELAY control. The adjustment range is ±100 ns.
PRESET: When setting the Y/C delay to the reference level. The setting of the Y/C DELAY control is ignored.

❿ SET UP (for BVW-D75)/BLACK LEVEL (for BVW-D75PS) control and switch
The SET UP control adjusts the setup level. Set the SET UP switch as follows.
MANUAL: When manually adjusting the setup level using the SET UP control. The adjustment range is between 0 and +15 IRE.
PRESET: When setting the setup level to the reference level. The setting of the SET UP control is ignored.

The BLACK LEVEL control adjusts the black level. Set the BLACK LEVEL switch as follows.
MANUAL: When manually adjusting the black level using the BLACK LEVEL control. The adjustment range is between 0 and 100 mV.
PRESET: When setting the black level to the reference level. The setting of the BLACK LEVEL control is ignored.

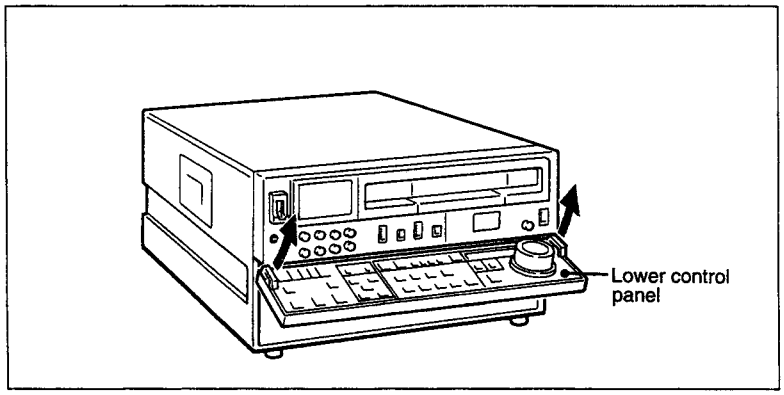
⓫ CHROMA control and switch
Adjust the chrominance signal output level. Set the CHROMA switch as follows.
MANUAL: When manually adjusting the chrominance signal output level using the CHROMA control. The adjustment range is ±3 dB. If you use the VIDEO control ⓬ with the CHROMA control, the adjustment range is ±6 dB.
PRESET: When setting the chrominance signal output level to the reference level. The setting of the CHROMA control is ignored.

⓬ VIDEO control and switch
Adjust the output level of video signal. Set the VIDEO switch as follows.
MANUAL: When manually adjusting the output level of video signal using the VIDEO control. The adjustment range is ±3 dB. Set to this position also when you extend the chroma level adjustment range to ±6 dB using the CHROMA control ⓫ with the VIDEO control.
PRESET: When setting the output level of video signal to the reference level.
The setting of the VIDEO control is ignored.

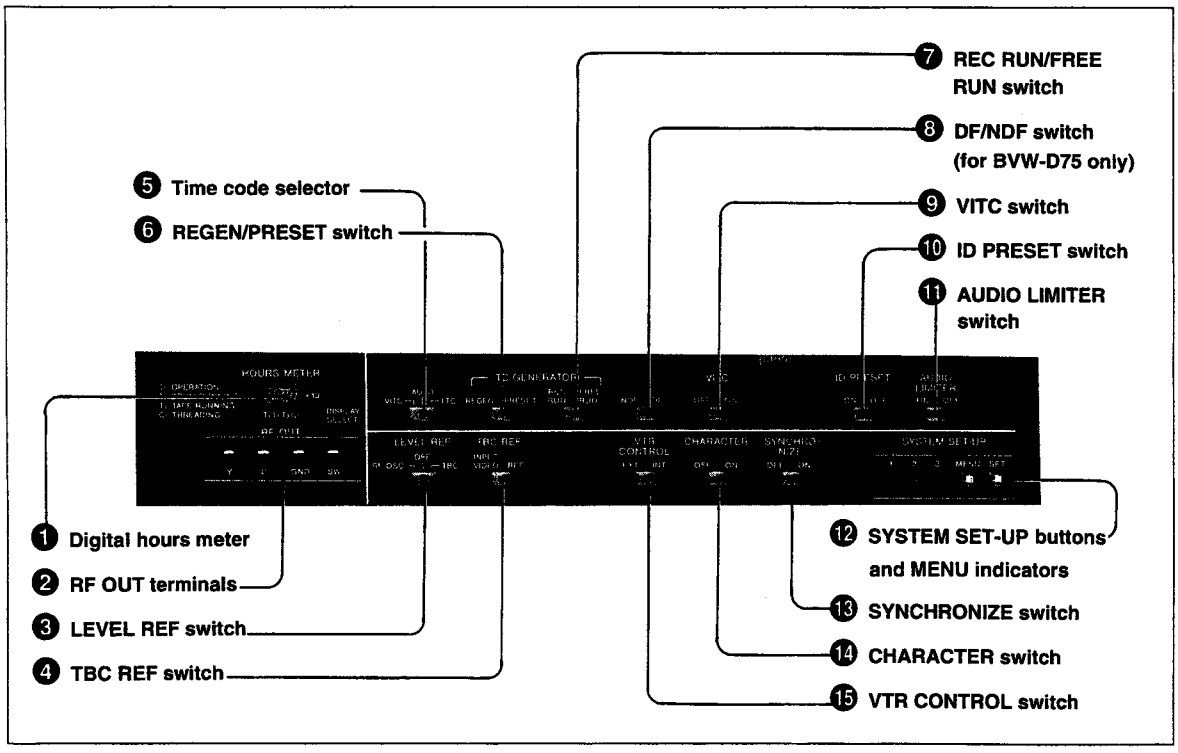
⓭ TBC (time base corrector) CONTROL switch
Selects the equipment which controls the built-in time base corrector.
LOCAL: The subsidiary control panel of the VTR controls the built-in time base corrector.
REMOTE: The optional BK-2006/BVR-50 remote control unit controls the built-in time base corrector.

2-3 System Control Panel

Pull the lower control panel up to a horizontal position to access the system control panel.



How to access the system control panel


7 REC RUN/FREE RUN switch
8 DF/NDF switch (for BVW-D75 only)
5 Time code selector
6 REGEN/PRESET switch
9 VITC switch
10 ID PRESET switch
11 AUDIO LIMITER switch
1 Digital hours meter
2 RF OUT terminals
3 LEVEL REF switch
4 TBC REF switch
12 SYSTEM SET-UP buttons and MENU indicators
13 SYNCHRONIZE switch
14 CHARACTER switch
15 VTR CONTROL switch

System control panel

❶ Digital hours meter

Shows a four-digit number indicating a time total or operation count for each of the four operation modes of the VTR, in units of 10.

For details refer to the maintenance manual.

❷ RF OUT terminals

Terminals used for maintenance purpose.

For details refer to the maintenance manual.

❸ LEVEL REF (reference) switch
Selects the stage to which the white marker signal is input.
RF OSC: When adjusting the FM deviation.
OFF: Normal position. The switch is factory set to this position.
TBC: When adjusting the video level.

For details refer to the maintenance manual.

❹ TBC REF (reference signal) switch
Selects the signal with which the TBC reference signal synchronizes.
REF: External reference signal
INPUT VIDEO: Input video signal
This switch is factory set to REF.

❺ Time code selector
Determines whether the time code displayed in the time counter display on the lower control panel is LTC or VITC. If this switch is set to AUTO, the time counter display shows LTC when the tape speed exceeds ±1/2 times normal speed and VITC when the speed is within ±1/2 times normal speed.
This switch is factory set to LTC.

❻ REGEN (regeneration)/PRESET switch
Selects the time code with which the built-in time code generator synchronizes.
REGEN: Time code read by the time code reader.
PRESET: Time code set with the VTR.

❼ REC RUN/FREE RUN switch
Selects the operation mode of the time code generator.
REC RUN: The time code advances only during recording. When you set the switch to this position, set the TC EXT/INT switch on the subsidiary control panel to INT and the REGEN/PRESET switch ❻ to PRESET.
FREE RUN: Regardless of the operation mode of the VTR, the time code advances as long as the VTR is powered on.
This switch is factory set to FREE RUN.

❽ DF/NDF (drop frame/non drop frame) switch (for BVW-D75 only)
Selects whether the time code generator and CTL counter advance in drop frame mode or non-drop-frame mode.
NDF: Non-drop-frame mode
DF: Drop frame mode
This switch is factory set to DF.
If the REGEN/PRESET switch ❻ is set to REGEN, this switch has no effect since the time code generator synchronizes with the playback time code.

❾ VITC (Vertical Interval Time Code) switch
Selects whether VITC signals are recorded or not.
OFF: VITC signals are not recorded.
Note that the VITC signals contained in the input video signals are automatically recorded.
ON: The VITC generated by the built-in time code generator is recorded.
This switch is factory set to ON.

For selection of the insertion line for VITC, refer to the maintenance manual.

❿ ID PRESET switch
Presets the ID code in the user bits generated by the time code generator.
This switch is factory set to OFF.

For details on the ID code, refer to the maintenance manual.

⓫ AUDIO LIMITER switch

Setting this switch to ON activates the audio limiter circuits for audio channels 1 and 2, which prevent distortion due to excessive input during microphone recording.
After adjusting recording levels using the REC level controls on the upper control panel, set this switch to ON.
This switch is factory set to OFF.

⓬ SYSTEM SET-UP buttons and MENU indicators

Change settings for VTR operation and the interface between external equipment.
Pressing the MENU button causes one of the MENU indicators to flash and the setup menu to appear in the time counter display and on the monitor.
The MENU indicators 1, 2 and 3 correspond to the different memory banks controlling VTR operation. While changing settings, one of the MENU indicators flashes to show which memory bank is affected.

For details on the setup menu, refer to "3-4 Setup Menu" on page 3-7 and the maintenance manual.

⓭ SYNCHRONIZE switch

When editing with this VTR and an external VTR, and using this VTR as a controller, this switch selects whether the phases of the two VTRs are synchronized or not.
ON: Phases are synchronized.
OFF: Phases are not synchronized.

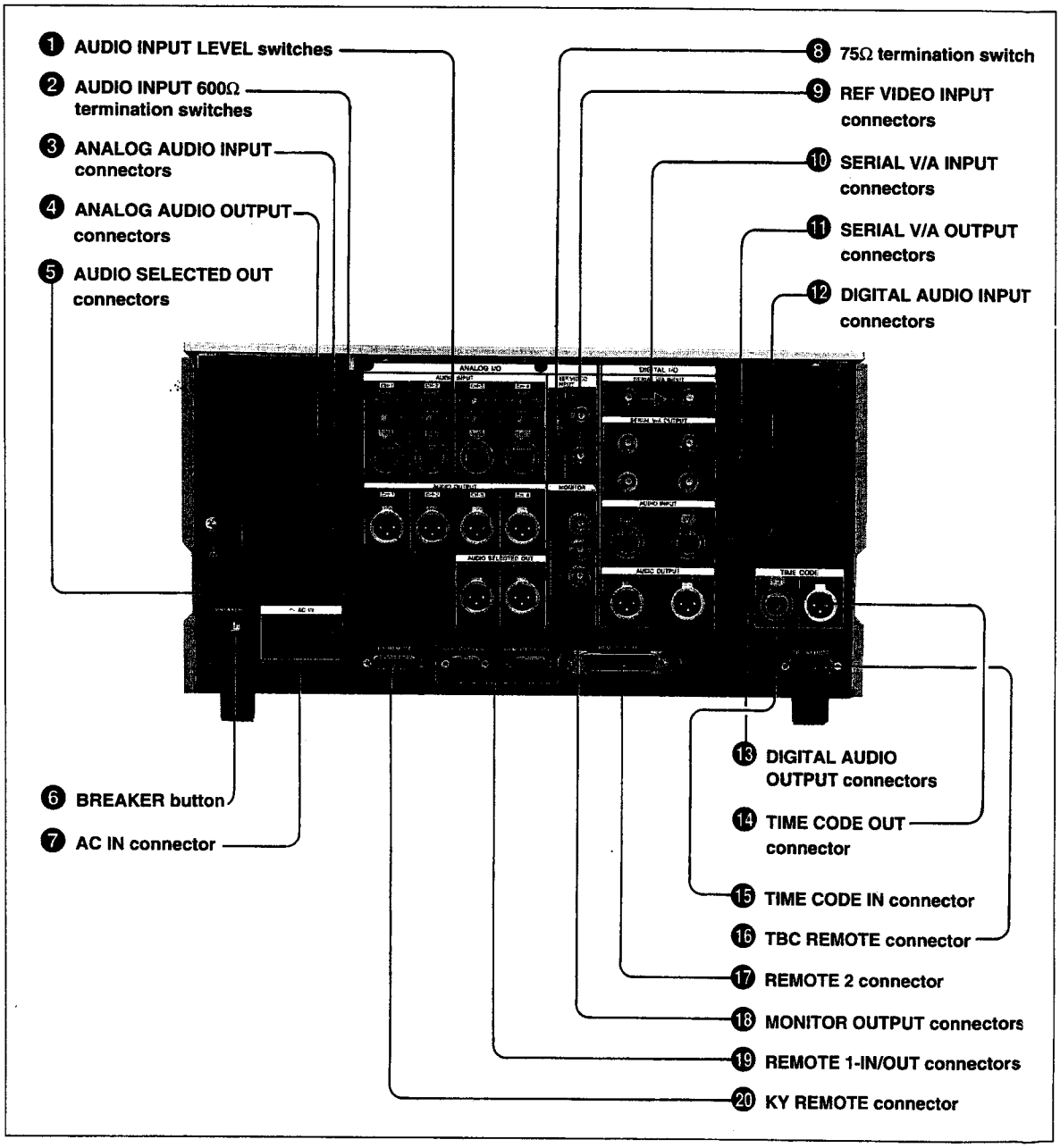
⓮ CHARACTER switch

Selects whether or not character signals such as time codes are superimposed on the video signals output from the MONITOR OUTPUT connectors.
ON: Superimposed.
OFF: Not superimposed.
This switch is factory set to ON.

⓯ VTR CONTROL switch

Selects a control panel to control this VTR.
INT: The control panel of this VTR controls this VTR.
EXT: The optional BVR-75A remote control panel controls this VTR.
This switch is factory set to INT.

2-4 Connector Panel


❶ AUDIO INPUT LEVEL switches
❷ AUDIO INPUT 600Ω termination switches
❸ ANALOG AUDIO INPUT connectors
❹ ANALOG AUDIO OUTPUT connectors
❺ AUDIO SELECTED OUT connectors
❻ BREAKER button
❼ AC IN connector
❽ 75Ω termination switch
❾ REF VIDEO INPUT connectors
❿ SERIAL V/A INPUT connectors
⓫ SERIAL V/A OUTPUT connectors
⓬ DIGITAL AUDIO INPUT connectors
⓭ DIGITAL AUDIO OUTPUT connectors
⓮ TIME CODE OUT connector
⓯ TIME CODE IN connector
⓰ TBC REMOTE connector
⓱ REMOTE 2 connector
⓲ MONITOR OUTPUT connectors
⓳ REMOTE 1-IN/OUT connectors
⓴ KY REMOTE connector

Connector panel

❶ AUDIO INPUT LEVEL switches

Set to the appropriate position for the audio input level of each channel input to the ANALOG AUDIO INPUT connectors ❸.

LOW: –60 dBm (microphone input)
HIGH: +4 dBm (line input)

❷ AUDIO INPUT 600Ω termination switches

Set to the appropriate position for audio input impedance.

ON: 600Ω, regardless of the setting of the AUDIO INPUT LEVEL switch ❶.
OFF: 10kΩ when the AUDIO INPUT LEVEL switch is set to HIGH, 3kΩ when it is set to LOW.

❸ ANALOG AUDIO INPUT connectors (XLR 3-pin)
Accept a maximum of four analog audio signal lines (channels 1 to 4).

❹ ANALOG AUDIO OUTPUT connectors (XLR 3-pin)
Output a maximum of four analog audio signal lines (channels 1 to 4).

❺ AUDIO SELECTED OUT connectors (XLR 3-pin)
Output signals to the audio monitor. These connectors output two signal lines: channels 1/3 and channels 2/4.
Select the output signals with the AUDIO MONITOR switches and adjust the volume level with the HEADPHONES level control on the upper control panel.

❻ BREAKER button
Cuts off the primary circuit of the AC power transformer if an excessive current flows within the VTR.

❼ AC IN connector
Connect to the AC outlet using the power cord supplied with the VTR.

❽ 75Ω termination switch
Set this switch to OFF when using both of the REF VIDEO INPUT connectors ❾ for a bridging connection. Otherwise, set it to ON.

❾ REF (reference) VIDEO INPUT connectors (BNC)
One of these connectors accepts a reference video signal. Use a video signal with chroma burst (VBS) or a black and white video signal (VS) as a reference video signal.
When using both of these connectors for a bridging connection, one of them serves as a loop-through output. Set the 75Ω termination switch ❽ to OFF when making a bridging connection. Otherwise, set it to ON.

❿ SERIAL V/A (video/audio) INPUT connectors (BNC)
One of these connectors accepts serial digital video/audio signals. If the VTR is powered on, the right connector serves as a loop-though output.

⓫ SERIAL V/A (video/audio) OUTPUT connectors (BNC)
Output a maximum of four lines (1 to 4) of serial digital video/audio signals.

⓬ DIGITAL AUDIO INPUT connectors (XLR 3-pin)
Accept a maximum of two lines (four channels: channels 1/2 and channels 3/4) of AES/EBU format digital audio signals.

⓭ DIGITAL AUDIO OUTPUT connectors (XLR 3-pin)
Output a maximum of two lines (four channels: channels 1/2 and channels 3/4) of AES/EBU format digital audio signals.

⓮ TIME CODE OUT connector (XLR 3-pin)
Outputs one of the following time codes according to the operation mode of the VTR.
During playback mode: Playback time code.
During record mode: Time code generated by the built-in time code generator or input to the TIME CODE IN connector ⓯.

⓯ TIME CODE IN connector (XLR 3-pin)
When recording the time code supplied by the external equipment, this connector accepts the time code signal.
Connect to the time code output terminal of the external equipment.

⓰ TBC REMOTE connector (15-pin)
Connect to the optional BK-2006/BVR-50 remote control unit to remotely control the built-in time base corrector.
Before connecting the remote control unit, be sure to turn off the power of the VTR.

⓱ REMOTE 2 connector (36-pin)
Connect to the BVE-500A/3000A/5000 editing control unit using a 36-pin cable for editing with remote control of the VTR.

⑱ MONITOR OUTPUT connectors (BNC)
Output Y, R-Y, B-Y component signals and superimposed information such as the time code, tape speed and setup status.
Connect these connectors to the component video monitor.

⑲ REMOTE 1-IN/OUT connectors (9-pin)
Connect to the other BVW-D75/D75PS or D-1 format VTR such as the DVR-2100 D-1 component digital VTR via the 9-pin remote control cable supplied with the VTR when you edit using two VTRs and the BVE-800/900/3000/9000 editing control unit. The REMOTE 1-IN and OUT connectors are loop-through connectors.

⑳ KY (key) REMOTE connector (15-pin)
Connect to the optional BVR-75A control panel using the 15-pin cable supplied with the BVR-75A when remotely controlling the VTR.

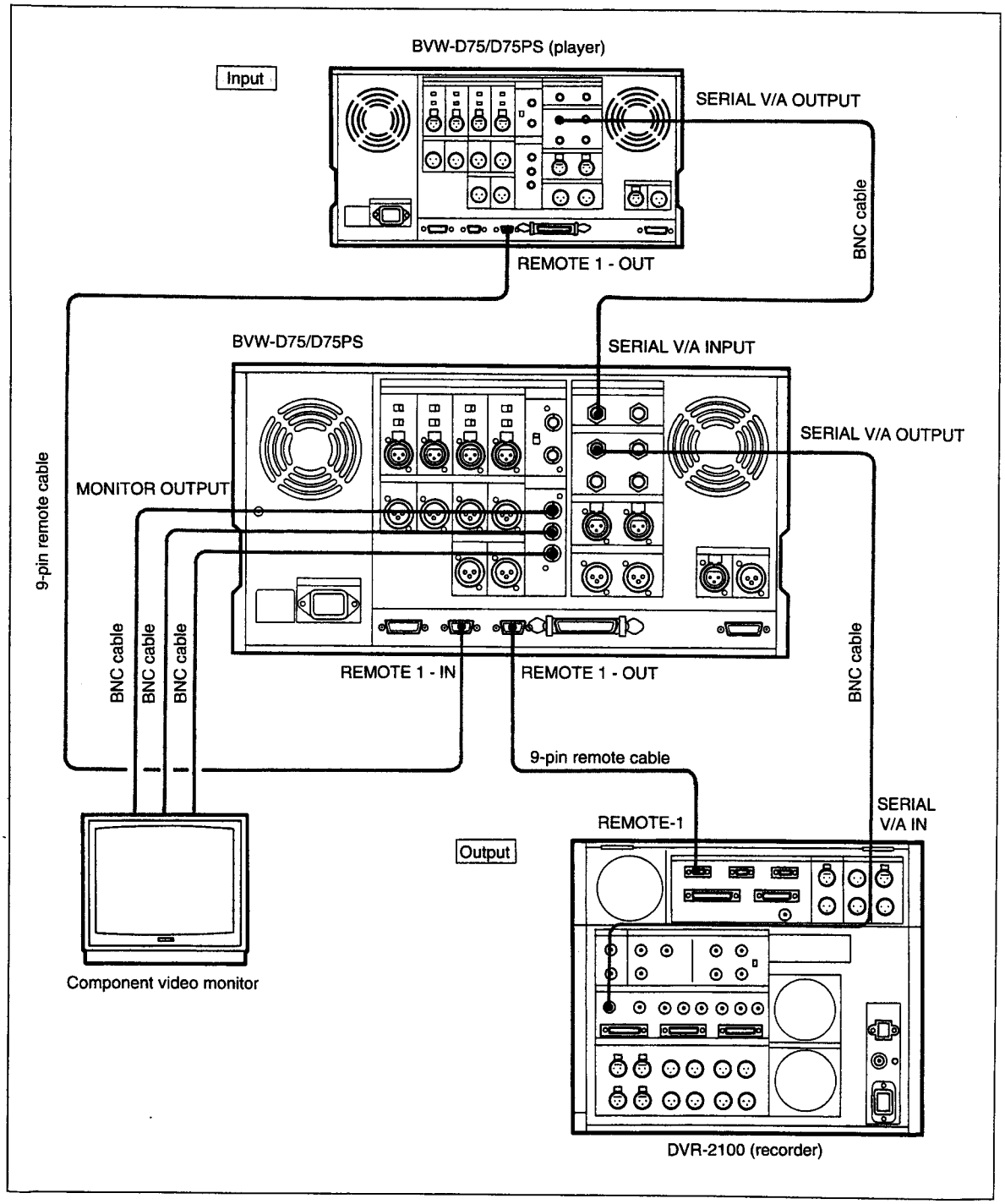
Chapter 3
Setting Up the VTR

This chapter explains preparations to make before operating the VTR.

3-1 Connecting External Equipment 3-1
3-2 Setting Connector Panel Switches 3-2
3-3 Reference Signals for Built-in Time Base Corrector (TBC) and Servo System 3-3
3-3-1 External Sync Signal for the Built-in Video Signal Generator 3-3
3-3-2 Reference Signal for the Servo System 3-4
3-3-3 Connecting Reference Signals 3-5
3-4 Setup Menu 3-7
3-4-1 Items in the Main Menu 3-7
3-4-2 Changing Menu Settings 3-9
3-5 Handling Cassettes 3-11
3-5-1 Recommended Cassettes 3-11
3-5-2 Inserting and Ejecting Cassettes 3-11
3-5-3 Preventing Accidental Erasure 3-13

3-1 Connecting External Equipment

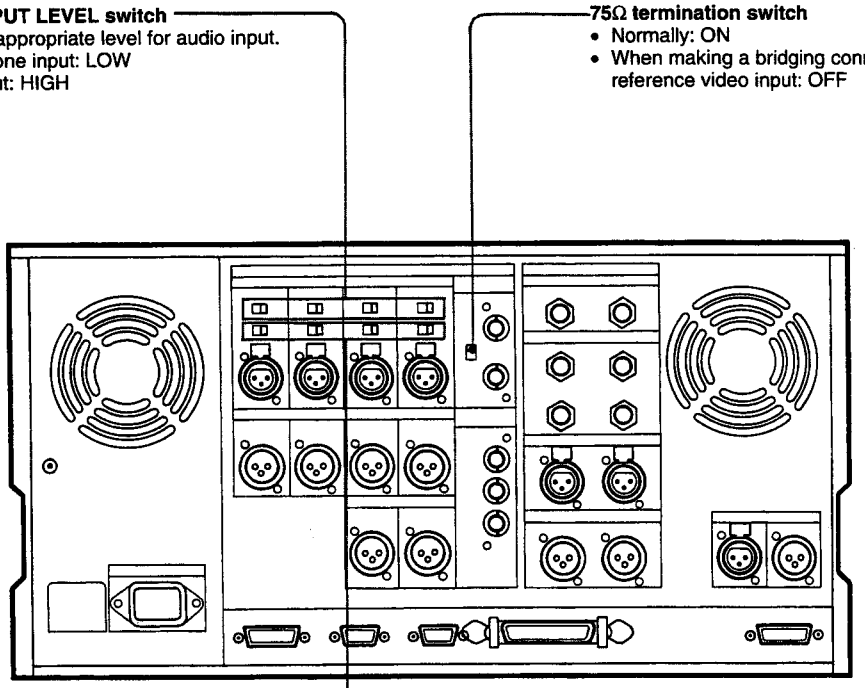
The diagram below shows how to connect to another BVW-D75/ D75PS, used as a player, and a DVR-2100 D-1 component digital VTR, used as a recorder.



Connection example

3-2 Setting Connector Panel Switches

Set the switches on the connector panel to the appropriate positions for input signals.


AUDIO INPUT LEVEL switch
Select the appropriate level for audio input.
• Microphone input: LOW
• Line input: HIGH
75Ω termination switch
• Normally: ON
• When making a bridging connection for reference video input: OFF
AUDIO INPUT 600Ω termination switch
Select the appropriate audio input impedance.
• 600Ω: ON
• 10kΩ (with the AUDIO INPUT LEVEL switch set to HIGH): OFF
• 3kΩ (with the AUDIO INPUT LEVEL switch set to LOW): OFF

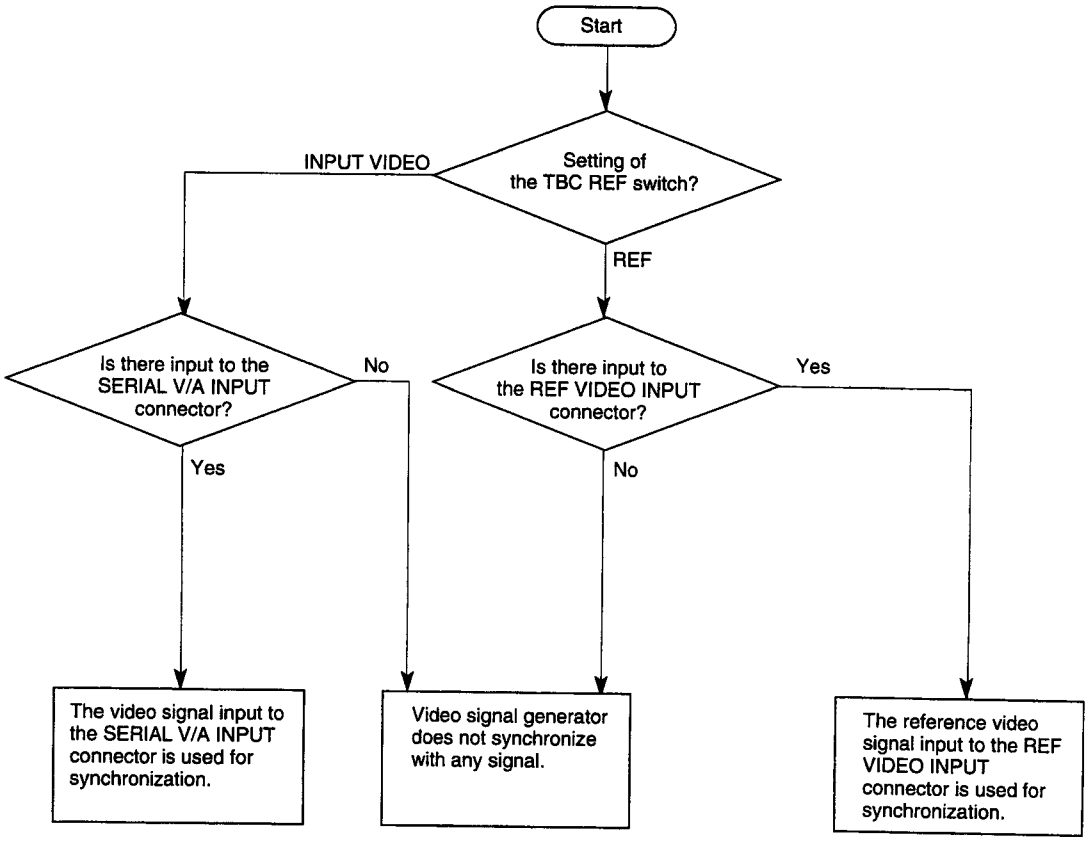
Setting switches on the connector panel

Corrector (TBC) and Servo System

This section describes how reference signals for the built-in time base corrector and servo system are selected.
The output from the built-in video signal (black burst signal) generator is supplied to the time base corrector and servo circuit as a reference signal.

3-3-1 External Sync Signal for the Built-in Video Signal Generator

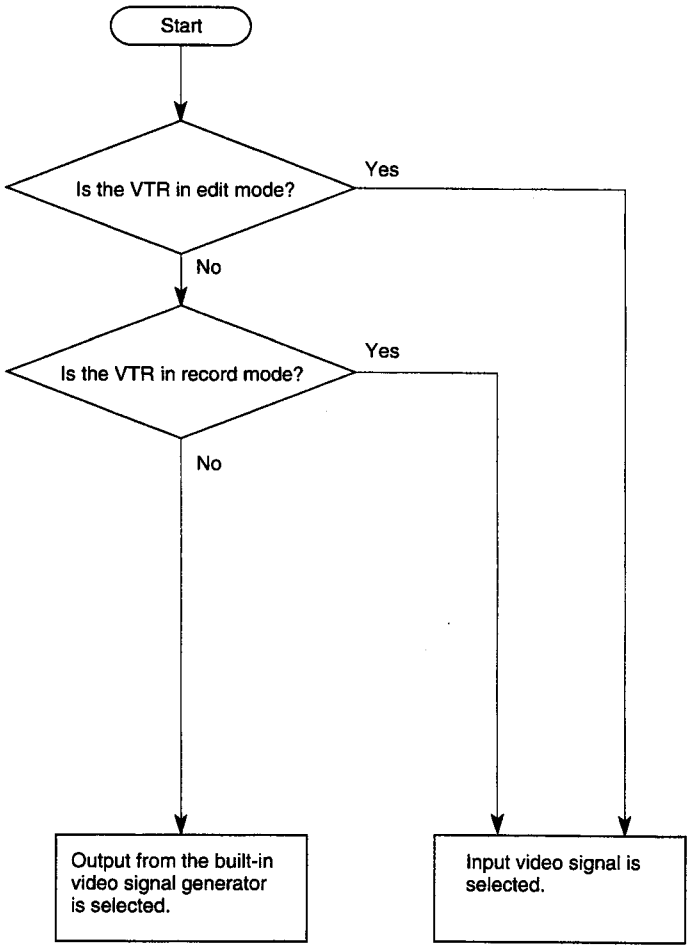
The built-in video signal generator synchronizes with either the reference video signal or input video signal. Which of the two signals is used for synchronization depends on the presence of input signal and the setting of the TBC REF switch on the system control panel, as shown in the following flow chart.


Start
Setting of the TBC REF switch?
INPUT VIDEO
REF
Is there input to the SERIAL V/A INPUT connector?
No
Yes
Is there input to the REF VIDEO INPUT connector?
Yes
No
The video signal input to the SERIAL V/A INPUT connector is used for synchronization.
Video signal generator does not synchronize with any signal.
The reference video signal input to the REF VIDEO INPUT connector is used for synchronization.

Automatic selection of external sync signal for built-in video signal generator

3-3-2 Reference Signal for the Servo System

The VTR automatically selects either the input video signal or the output from the built-in video signal generator as the reference signal for the servo system. Which of the two signals is selected depends on the operational status of the VTR, as shown in the following flow chart.



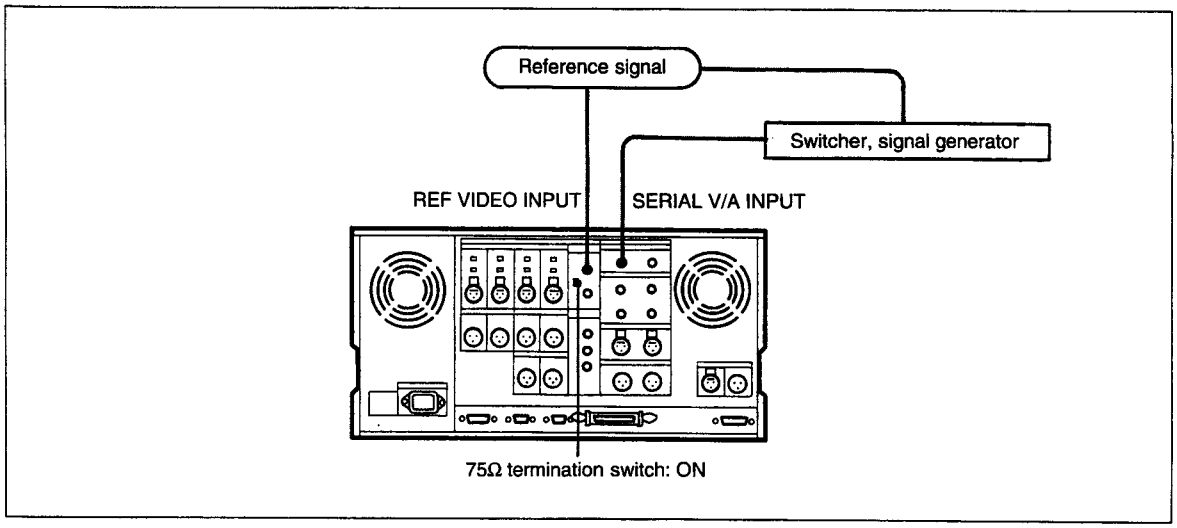
Automatic selection of reference signal for the servo system

3-3-3 Connecting Reference Signals

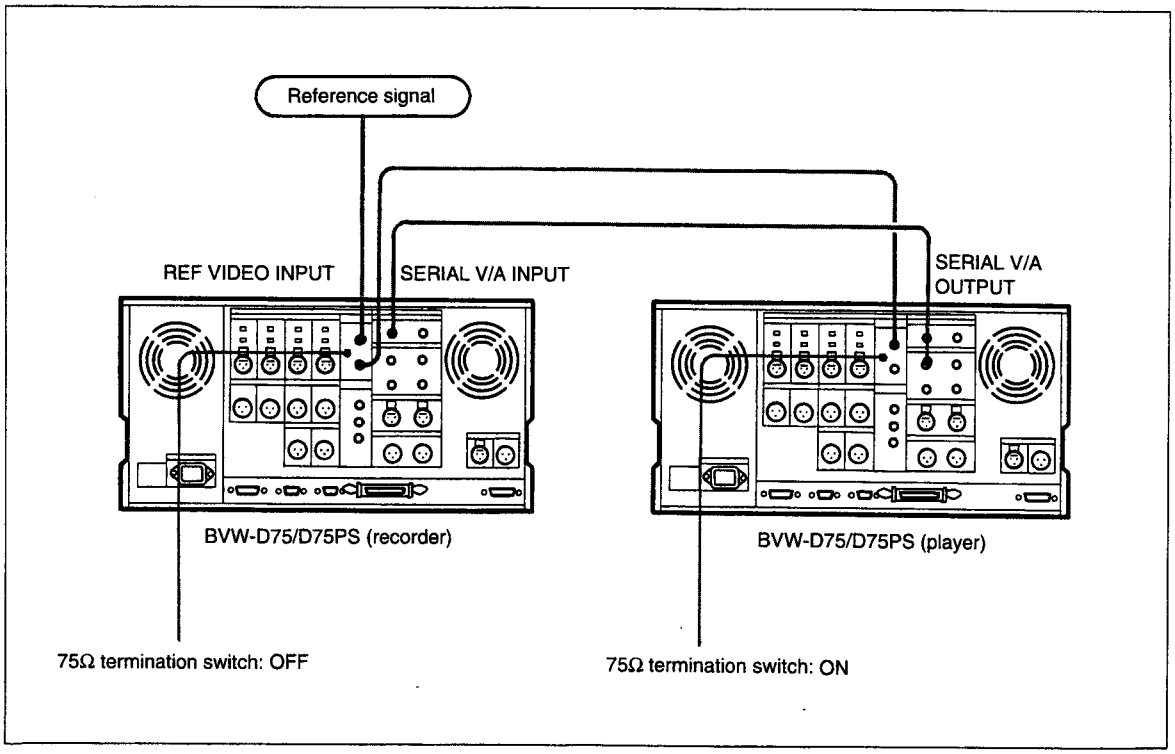
Connect reference signals according to recording or playback requirements.

Reference signal connections

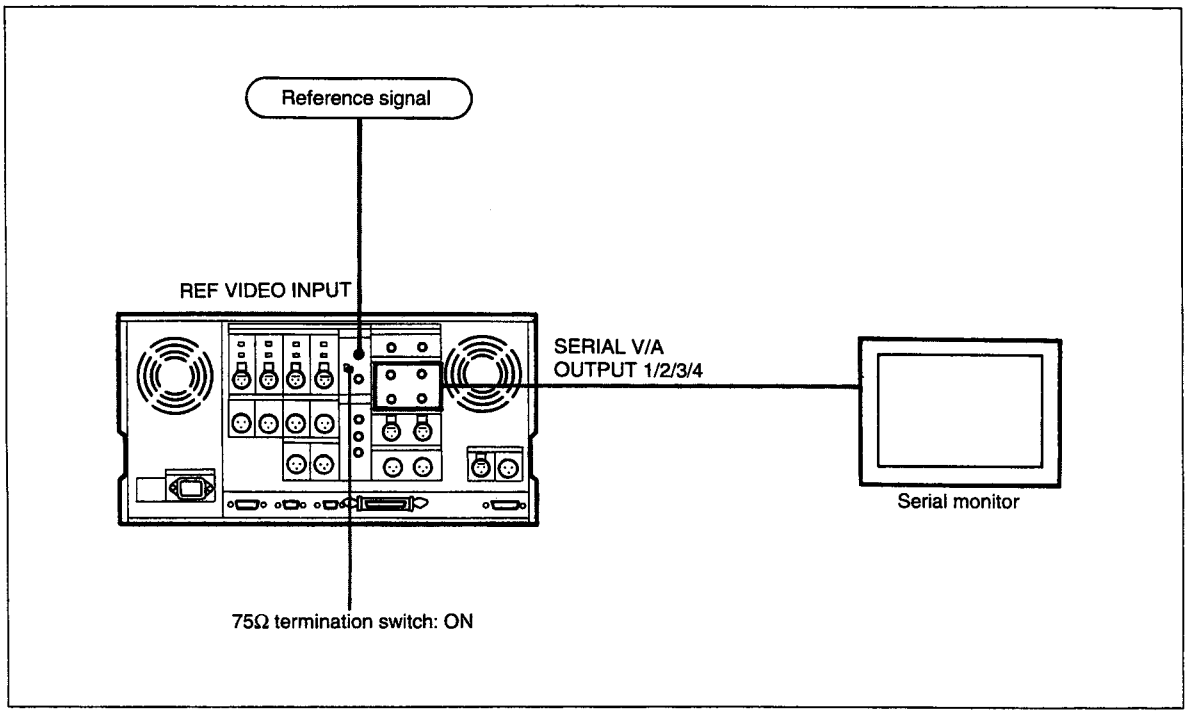
For recording signals from switcher or signal generator



For recording signals from VTR



For playback



3-4 Setup Menu

The setup menu contains the settings changed most often such as the preroll time, and the position and type of the characters superimposed on output to the monitor.
The setup menu consists of the main menu and an extended menu. This section describes the items in the main menu and explains how to change menu settings.

For details on the extended menu, refer to the maintenance manual.

3-4-1 Items in the Main Menu

The items in the main menu are shown in the following table.

Items and values in the main menu

Item number	Item name	Explanation	Value*	Meaning of value
001	PREROLL TIME	Preroll time.	00 | [05] | 15	Value represents time in seconds. The value range is between 0 and 15. When using the VTR for editing, set the value to at least 3 (for BVW-D75) or 5 (for BVW-D75PS).
002**	CHARACTER H-POSITION	Horizontal position of characters superimposed on the monitor screen.	00 | [1E] | 57	Far left of the screen at 00. Position moves to the right as the value increases. The value range is between hexadecimal 00 and 57 (88 steps).
003**	CHARACTER V-POSITION	Vertical position of the characters superimposed on the monitor screen.	00 | [64] | 7B	Top of the screen at 00. Position moves down as the value increases. The value range is between hexadecimal 00 and 7B (124 steps).
005	DISPLAY INFORMATION SELECT	Type of information superimposed on the monitor screen.	[0] 1 2 3 4	0: Timer information*** and operational status. 1: Timer information and user bits. 2: Timer information and CTL. 3: Timer information and time data****. 4: Time data only.

(continued)

Items and values in the main menu (continued)

Item number	Item name	Explanation	Value*	Meaning of value
006	LOCAL FUNCTION ENABLE	Switches and buttons which are enabled when remotely controlling the VTR.	0 [1] 2	0: No switches or buttons enabled. 1: Only STOP and EJECT buttons enabled. 2: All the switches and buttons except RECORDER and PLAYER buttons enabled.
007	TAPE TIMER DISPLAY	Time system for CTL hour values.	[0] 1	0: 12-hour system. 1: 24-hour system.
008	MONITORING SELECTION FOR VTR-TO-VTR EDIT	This setting determines whether or not the recorder is forced into E-E mode when the PLAYER button of the recorder is pressed during recorder-player editing with only one monitor connected to the recorder.	[0] 1	0: The recorder is not forced into E-E mode. 1: The recorder is forced into E-E mode and the playback signal from the player is output to the monitor.
009**	CHARACTER TYPE	Type of characters superimposed on the monitor screen.	[0] 1 2 3	0: White characters on a black background. 1: Black characters on a white background. 2: White characters with black outline. 3: Black characters with white outline.
010**	CHARACTER H-SIZE	Horizontal size of characters superimposed on the monitor screen.	[0] 1	0: Standard size. 1: Twice the standard size.
011**	CHARACTER V-SIZE	Vertical size of characters superimposed on the monitor screen.	[0] 1 2 3	0: Standard size. 1: Twice the standard size. 2: 3 times the standard size. 3: 4 times the standard size.

* The numbers enclosed in boxes in the "Value" column indicate the factory preset values.

** When setting values for item numbers 002, 003, 009, 010 and 011, watch the monitor as you change the settings.

*** Timer information is the time data corresponding to the edit points.

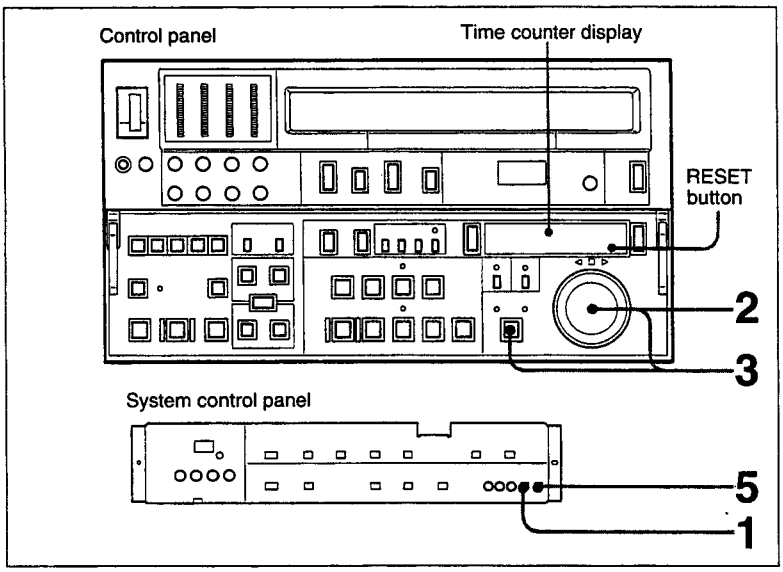
**** Time data consists of LTC, VITC and user bits.

3-4-2 Changing Menu Settings

This section describes how to change the factory preset values for menu settings.

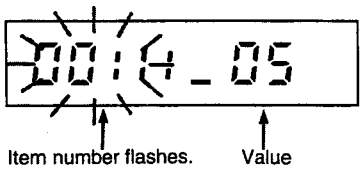
Refer to the maintenance manual for selection of the memory bank.

Follow the procedure below to change the factory preset values.



Changing menu settings

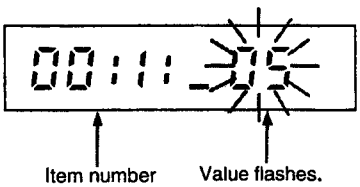
1 Press the MENU button to display the menu in the time counter display.



2 Rotate the search dial to select the item to change.

The item number increases or decreases as you turn the search dial clockwise or counterclockwise.

3 To change the value, rotate the search dial while holding down the search button. When the appropriate value appears, release the search button.



4 Repeat Steps **2** and **3** to change other items.

5 To save the changes, press the SET button.

Restoring the factory preset values

Follow the procedure below to restore the factory preset values.

1 Press the MENU button to display the menu in the time counter display.

2 Press the RESET button in the time counter display section.

3-5 Handling Cassettes

3-5-1 Recommended Cassettes

You can use 1/2-inch Betacam or Betacam SP video cassettes.

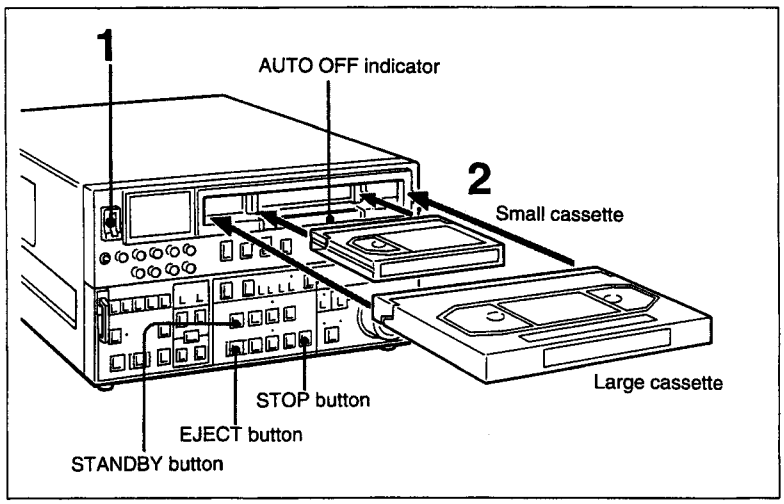
Recommended cassettes

	Metal tape	Oxide tape
Small cassettes	BCT-5M/10M/20M/30M	BCT-5G/10G/20G/30G
Large cassettes	BCT-5ML/10ML/20ML/ 30ML/60ML/90ML	BCT-5GL/10GL/20GL/ 30GL/60GL/90GL

3-5-2 Inserting and Ejecting Cassettes

Always turn on the power of the VTR before inserting or ejecting cassettes.

Inserting the cassette



Inserting the cassette

1 Turn on the POWER switch.

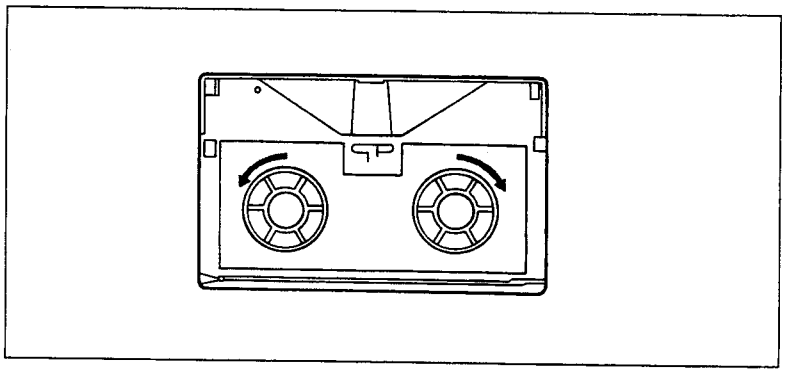
2 Insert the cassette after checking the following points.
- There is no slack in the tape.
- The AUTO OFF indicator is off and "Error-10" is not displayed in the time counter display.
- The window of the cassette is facing upward.

If there is slack in the tape, see "Removing slack in the tape" on the next page. If "Error-10" is displayed in the time counter display, see "Moisture Condensation" in the Appendix on page A-2.

When inserting the small cassette, align it with the marks on the cassette insertion slot.

The cassette is automatically loaded, and the tape is wound on the drum. The head-drum starts to rotate, the tape stops, and the STANDBY and STOP buttons light.

Removing slack in the tape
Press one of the reels in lightly, and gently rotate it in the direction shown by the arrows until it stops.



Removing slack in the tape

Preventing double cassette insertion
When a cassette is loaded, an orange lock-out bar appears in the cassette insertion slot to prevent double cassette insertion.

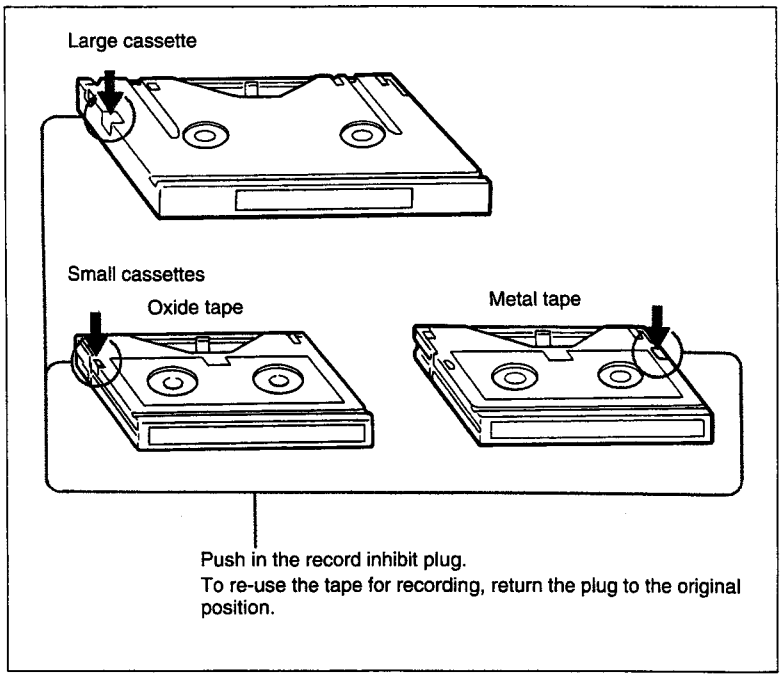
Ejecting the cassette

Press the EJECT button.

In a few seconds, the tape is unthreaded and the cassette is automatically ejected.

3-5-3 Preventing Accidental Erasure

To safeguard material recorded on a tape, do as follows:


Large cassette
Small cassettes
Oxide tape
Metal tape
Push in the record inhibit plug.
To re-use the tape for recording, return the plug to the original position.

Preventing accidental erasure

If a cassette with the plug pushed in is inserted into the VTR, the REC INHIBIT indicator on the lower control panel will light and recording will not start, even if you press the REC button.

Chapter 4 Recording

This chapter explains preparation for recording, time codes setting, and basic recording.

4-1 Preparing for Recording 4-1
- 4-1-1 Setting Switches 4-1
- 4-1-2 Selecting Audio Signals 4-2
- 4-1-3 Adjusting the Audio Recording Level 4-4
- 4-1-4 Mixing and Recording Input Signals on Channels 1 and 2 4-4
- 4-1-5 Monitoring Simultaneous Playback Video and Audio As They Are Recorded 4-4

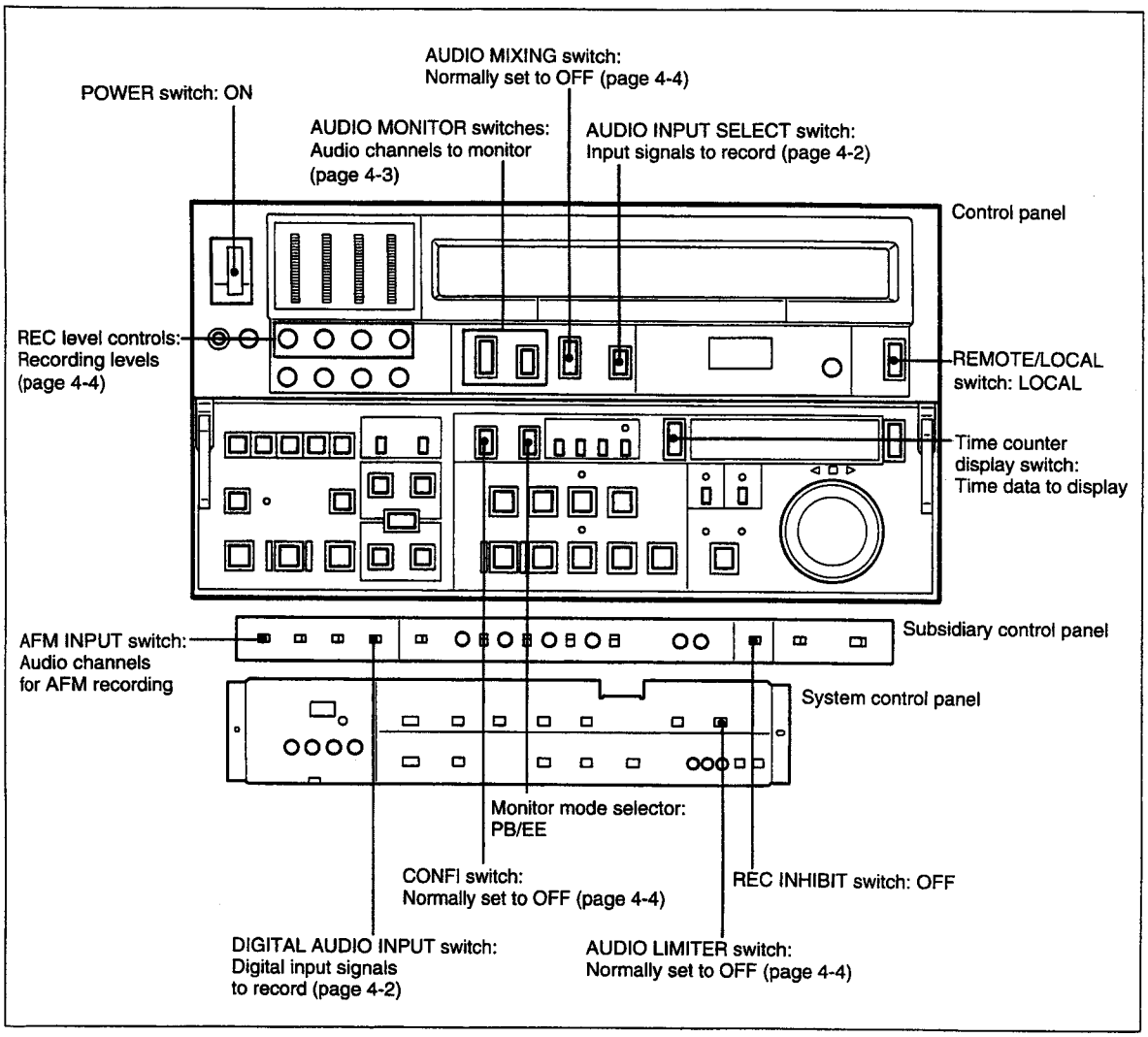
4-2 Recording Time Codes and User Bits 4-5
- 4-2-1 Recording Time Codes Generated by the Built-in Time Code Generator 4-5
- 4-2-2 Synchronizing Built-in Time Code Generator with External Time Code Generator 4-8
- 4-2-3 Recording External Time Codes without Change 4-10

4-3 Recording 4-12

4-1 Preparing for Recording

4-1-1 Setting Switches

Before recording, set the switches as shown in the diagram below.
For details, see the pages in the parenthesis.



Switch setting for recording

4-1-2 Selecting Audio Signals

This section describes how to select audio input signals, AFM recording signals, and audio signals to monitor.

Regarding the location of switches, see "4-1-1 Setting Switches" on page 4-1.

Selecting audio input signals

Set the AUDIO INPUT SELECT switch on the upper control panel and the DIGITAL AUDIO INPUT switch on the subsidiary control panel as shown in the table below.

Switch settings and audio input signals

Audio input signal		AUDIO INPUT SELECT switch	DIGITAL AUDIO INPUT switch
Analog		ANALOG	——
Digital	Serial V/A	DIGITAL	SERIAL V/A
	AES/EBU	DIGITAL	AES/EBU

Selecting input signals for AFM recording

Signals are automatically recorded by AFM when using metal tape. Set the AFM INPUT switch on the subsidiary control panel as follows to select audio input signals for AFM recording on the chrominance track.

CH-1/2: Analog or digital signals input to channels 1 and 2
CH-3/4: Analog or digital signals input to channels 3 and 4

Signals input to channels 1 and 2 are always recorded on the longitudinal track regardless of the setting of the AFM INPUT switch.

Notes

- Signals input to channels 3 and 4 are never recorded on the longitudinal track even if you set the AFM INPUT switch to CH-3/4.
- You cannot record signals by AFM when you use oxide tape.

Selecting audio signals to monitor

Set the AUDIO MONITOR switches on the upper control panel as follows to select the audio signals output from the HEADPHONES jack and the AUDIO SELECTED OUT connectors.

Switch settings and output audio signals

Setting of AUDIO MONITOR switches*		Output audio signal
CH-1/3	LNG	Channel 1
	AFM	Channel 3
ST	LNG	Stereo (channels 1 and 2)
	AFM	Stereo (channels 3 and 4)
CH-2/4	LNG	Channel 2
	AFM	Channel 4

* You can change the relationship between output audio signals and the settings of the AUDIO MONITOR switches using the setup menu.

For details, refer to the maintenance manual.

To adjust the audio volume level

Rotate the HEADPHONES level control on the upper control panel.

Note

When using oxide tape, setting the AUDIO MONITOR switch to AFM produces no audio output.

4-1-3 Adjusting the Audio Recording Level

If the REC level controls are pushed in, signals are recorded at the preset level (0VU at an input of +4dBm).

To manually control the audio recording level, follow the procedure below.

1 Set the AUDIO LIMITER switch on the system control panel to OFF.

2 Pull out the REC level controls on the upper control panel for the appropriate channels and rotate the controls so that the audio level meters indicate approximately 0VU for the maximum audio signal input level.

3 To use the audio limiter circuits, set the AUDIO LIMITER switch to ON after adjusting the recording level.

4-1-4 Mixing and Recording Input Signals on Channels 1 and 2

Set the AUDIO MIXING switch on the upper control panel as follows.
TO CH-1: Mixed signals are recorded on channel 1. Input audio signals on channel 2 are recorded on channel 2.
TO CH-2: Mixed signals are recorded on channel 2. Input audio signals on channel 1 are recorded on channel 1.

The mixing ratio is 1 to 1 with the REC level controls pushed in.

4-1-5 Monitoring Simultaneous Playback Video and Audio As They Are Recorded

Set the CONFI switch on the lower control panel to ON.

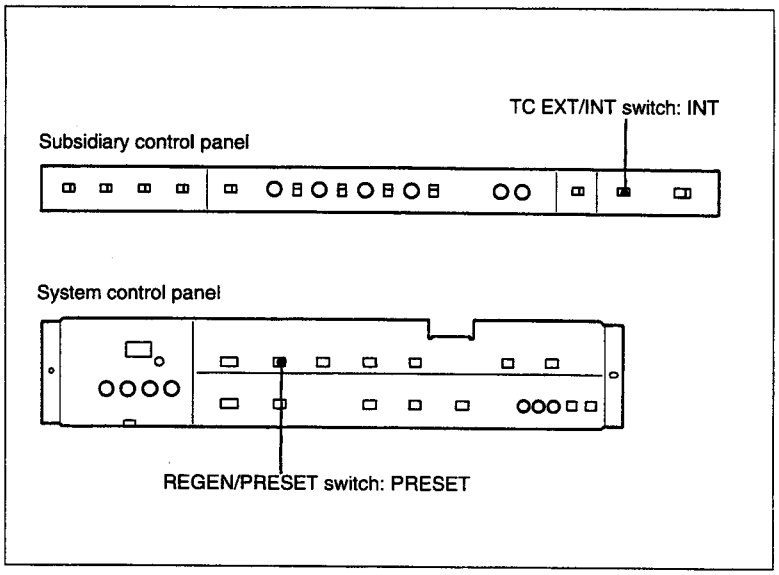
You can monitor the audio on the longitudinal track and the video currently being recorded.

4-2 Recording Time Codes and User Bits

You can record time codes generated by either the built-in time code generator or by an external time code generator.
The time codes generated by the built-in time code generator can be initialized with an arbitrary value or synchronized with an external time code generator.

4-2-1 Recording Time Codes Generated by the Built-in Time Code Generator

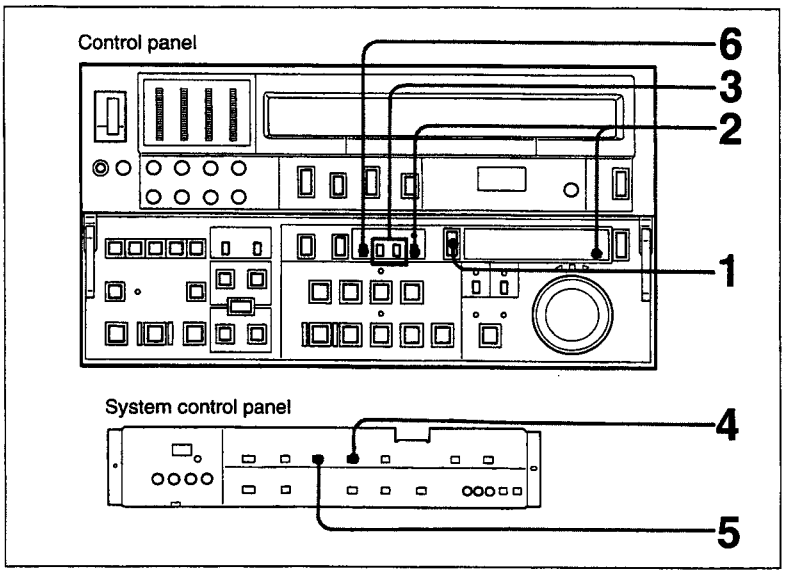
Set the switches on the subsidiary control panel and system control panel as shown below.



Switch settings for setting time code

Setting time codes

Follow the procedure below to set time codes.



Setting time codes

1 Set the time counter display switch to TC.

2 Press the HOLD button.

The HOLD indicator lights and the leftmost digit in the time counter display flashes.

If necessary, set all the digits to 0 by pressing the RESET button in the time counter display section.

3 Set the time code using the SHIFT and ADV buttons.

- SHIFT button: Selects a digit. The selected digit flashes. Each press of this button shifts the flashing digit to the adjacent digit on the right.
- ADV button: Changes the flashing digit. Each press of this button increments the value.

4 If you are using the BVW-D75, set the DF/NDF switch to the appropriate position; otherwise, skip this step.

- Drop frame mode: DF
- Non-drop-frame mode: NDF

5 Set the FREE RUN/REC RUN switch to the appropriate position.

- To allow the time code to advance regardless of the operational status of the VTR: FREE RUN
  The time code starts to advance immediately after Step **6**.
- To allow the time code to advance only during recording: REC RUN
  After Step **6**, the time code starts to advance as soon as the recording begins and stops the moment the recording stops.

6 Press the PRESET button.

Setting user bits

1 Set the time counter display switch to U-BIT.

2 Set the user bits following Steps **2** and **3** of "Setting time codes" on page 4-6. User bit values of hexadecimal "A" or larger are shown in the time counter display as follows.

Hexadecimal value	A	B	C	D	E	F
Display						

3 Press the PRESET button.

Setting real time

1 Follow Steps **1** through **5** for "Setting time codes" on page 4-6, selecting DF in Step **4** (for BVW-D75 only) and FREE RUN in Step **5**.

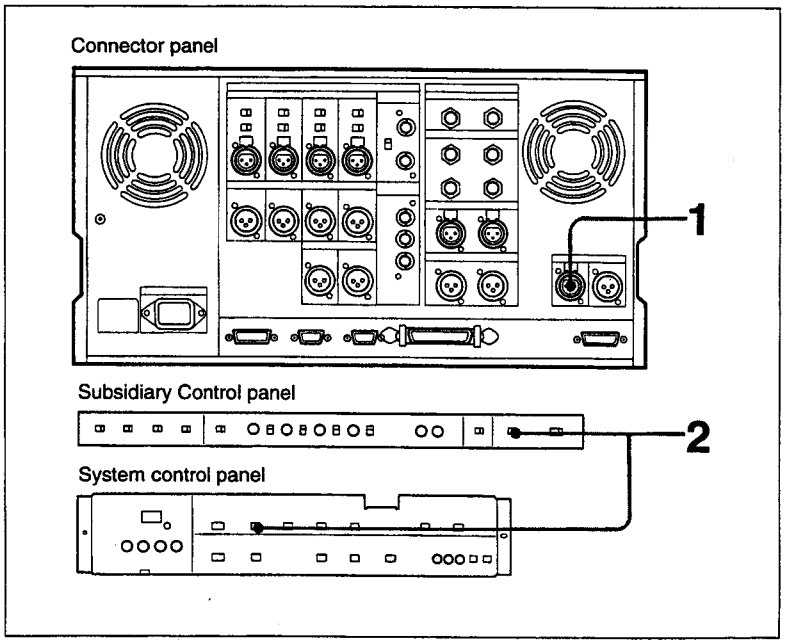
2 Press the PRESET button at the moment when the real time matches the value which you have set.

4-2-2 Synchronizing Built-in Time Code Generator with External Time Code Generator

Use this method to synchronize the time code generators of two or more VTRs, or to record playback time code signals from an external VTR without distorting the signal waveforms.
When the built-in time code generator is synchronized with an external signal, the REC RUN/FREE RUN and DF/NDF switches of the VTR are ignored.

Synchronizing with external time codes

Follow the procedure below to synchronize the built-in time code generator with an external time code generator.



Synchronizing with external time codes

1 Connect the time code output from the external time code generator or external VTR to the TIME CODE IN connector.

2 Set the switches as follows.
- TC EXT/INT switch: EXT
- REGEN/PRESET switch: REGEN

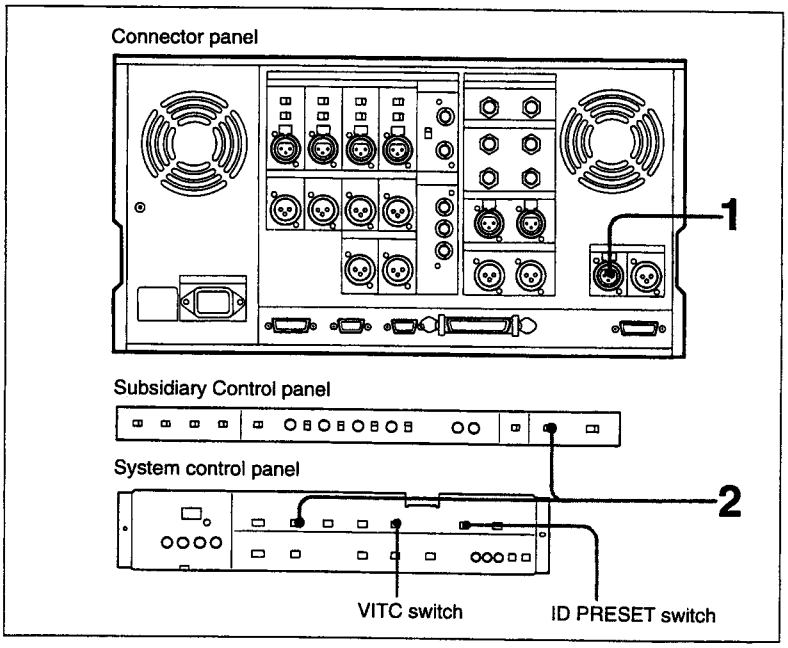
The moment you set the switches, the built-in time code generator starts to advance in synchronization with the external time code generator.

Once the built-in time code generator synchronizes, the synchronized time code continues to advance even after the external time code generator is disconnected.

Confirming the advance of the built-in time code generator
Put the VTR into stop mode and press the REC button. Confirm that the time code displayed in the time counter display is advancing in synchronization with the external time code.

4-2-3 Recording External Time Codes without Change

If you use this method, you can record external time codes without affecting the advance of the built-in time code generator. However, the method described in "4-2-2 Synchronizing Built-in Time Code Generator with External Time Code Generator" on page 4-8 is recommended for recording playback time codes from an external VTR.



Recording external time codes without change

1 Connect the time code output from the external time code generator to the TIME CODE IN connector.

2 Set the switches as follows.
- TC EXT/INT switch: EXT
- REGEN/PRESET switch: PRESET

Recording VITC time code

Set the VITC switch on the system control panel to ON.

Recording ID code in the user bits

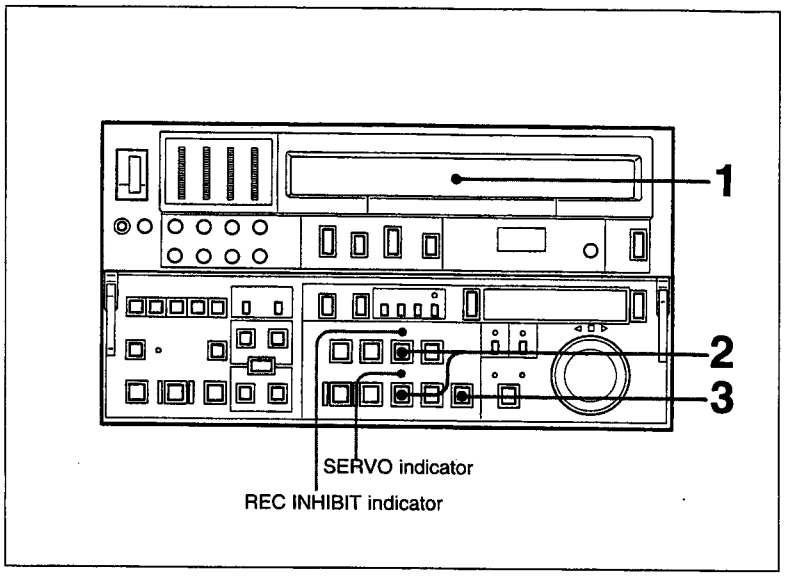
You can store an ID code in non-volatile memory as user bits and recall it later for recording.
To record the ID code, set the ID PRESET switch on the system control panel to ON.

If the ID PRESET switch is set to OFF, user bits set from the control panel are recorded.

For details, refer to the maintenance manual.

4-3 Recording

Follow the procedure below to record signals.



Recording

1 Insert the cassette after checking that the REC INHIBIT indicator is off.

For details, see "3-5-2 Inserting and Ejecting Cassettes" on page 3-11.

2 Press the REC and PLAY buttons simultaneously.

Recording starts and the SERVO indicator lights to show that the servo is locked.

3 Press the STOP button to stop recording.

If recording continues to the end of the tape
The tape automatically rewinds to the beginning and stops.

Chapter 5 Playback

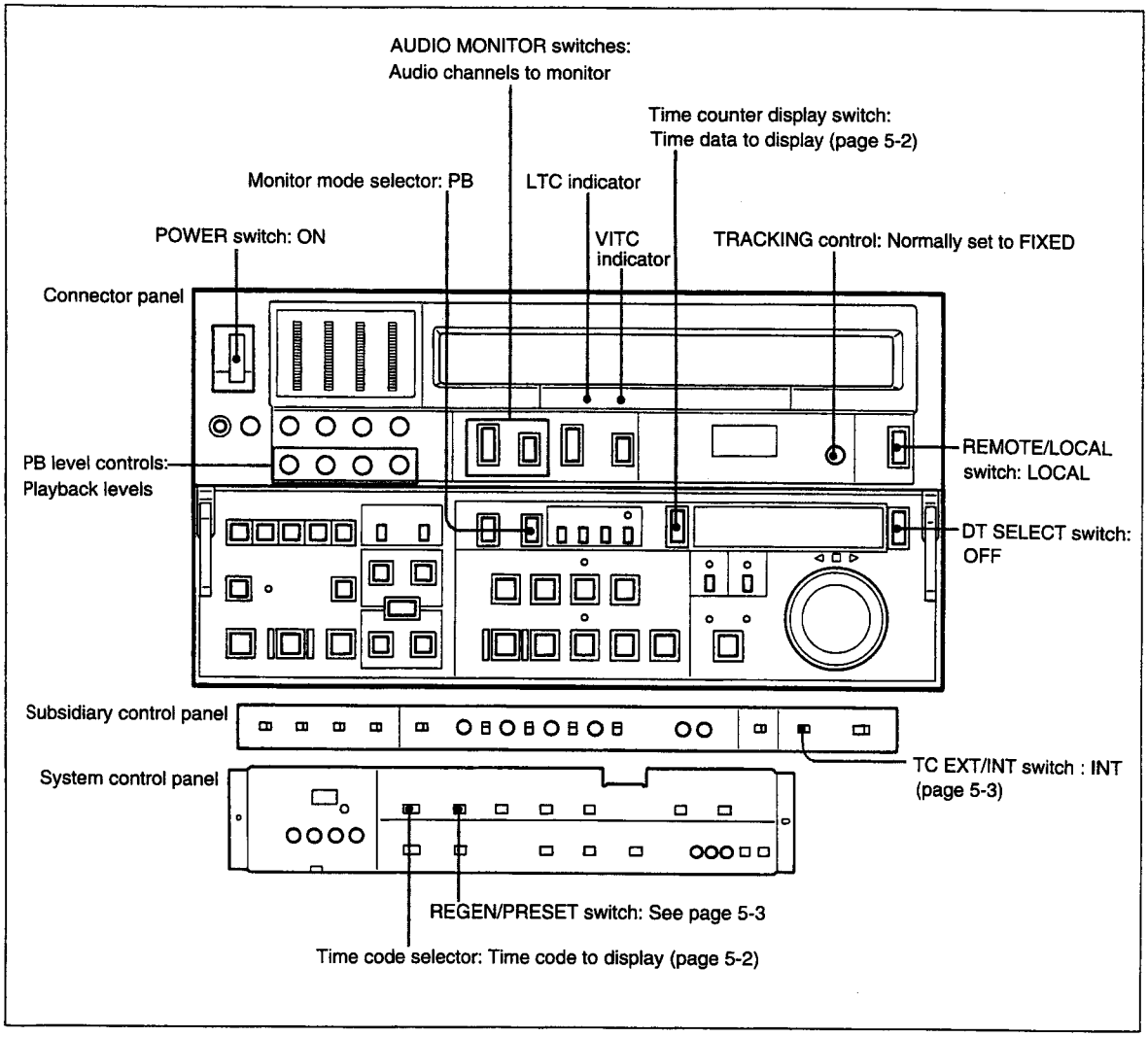
This chapter describes preparations for playback and the various playback methods.

5-1 Preparing for Playback 5-1
5-1-1 Setting Switches 5-1
5-1-2 Selecting Time Data To Display 5-2
5-1-3 Adjusting Audio Playback Level 5-4
5-1-4 Adjusting Tracking 5-4
5-2 Playback 5-5
5-2-1 Normal Speed Playback 5-5
5-2-2 Variable-Speed Playback in Jog/Shuttle Modes 5-6
5-2-3 Capstan Override Playback 5-8
5-2-4 Dynamic Motion Control (DMC) Playback 5-10

5-1 Preparing for Playback

5-1-1 Setting Switches

Before starting playback, set the switches as follows. For details, see the pages in the parenthesis.



Switch settings for playback

5-1-2 Selecting Time Data To Display

Select one of the following types of time data to display in the time counter display.

- CTL codes
- Time codes
- User bits

For location of switches used in the following operations, see "5-1-1 Setting Switches" on page 5-1.

Displaying CTL codes

Set the time counter display switch on the lower control panel to CTL.

The VTR counts the CTL signals recorded on the tape and displays tape running time in hours, minutes, seconds and frames.

Resetting display
Press the RESET button in the time counter display section.
The value is set to "0:00:00:00" and the minus sign appears if the tape is rewound from that position.

Displaying time codes

Set the time counter display switch to TC.

Set the time code selector on the system control panel as follows to select the type of time code to display.

LTC: LTC

AUTO:
- VITC if the playback speed is within ±1/2 times normal speed.
- LTC if the playback speed exceeds ±1/2 times normal speed.

VITC: VITC

The VITC or LTC indicator on the upper control panel lights to show the type of time code recorded on the tape.
The playback time code, or the time code read by the time code reader, is output from the TIME CODE OUT connector.

Supplying playback time code to external VTR without waveform distortion

Using the following method allows time code signals generated by the built-in time code generator and synchronized with the playback time code to be output from the TIME CODE OUT connector.

1 Select 1 for Item 606 of the extended setup menu.

For details on the extended setup menu, refer to the maintenance manual.

2 Set the REGEN/PRESET switch on the system control panel to REGEN.

3 Set the TC INT/EXT switch on the subsidiary control panel to INT.

Outputting playback time codes unchanged

Set the REGEN/PRESET switch to PRESET.

Displaying user bits

Set the time counter display switch to U-BIT.

As when displaying time codes, user bits contained in either LTC or VITC time codes are displayed according to the setting of the time code selector on the system control panel.

5-1-3 Adjusting Audio Playback Level

If the PB level controls on the upper control panel are pushed in, audio signals are output at the preset level.

For details on changing the preset level, refer to the maintenance manual.

To manually adjust the audio playback level
Rotate the PB level controls for the appropriate channels.

5-1-4 Adjusting Tracking

If noise or stripes appear on the monitor screen during playback, adjust tracking as follows:

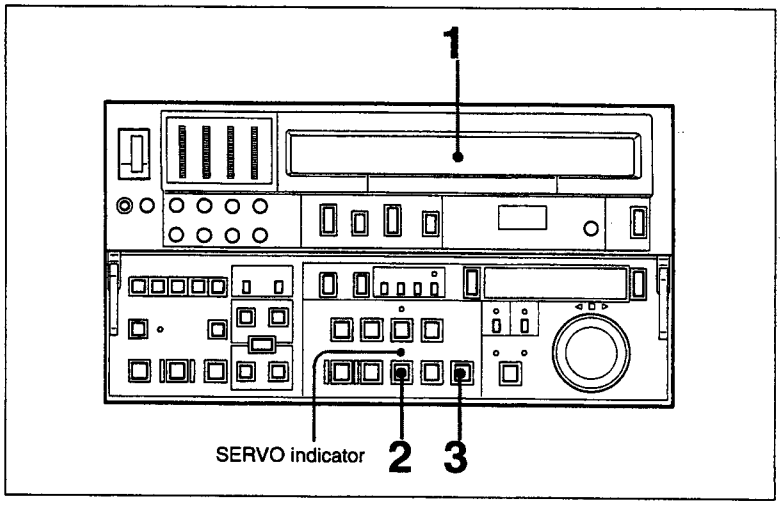
1 Check that the DT SELECT switch on the lower control panel is set to OFF.

2 Rotate the TRACKING control on the upper control panel so that the pointer of the RF meter points as far as possible to the right.

5-2 Playback

There are four methods of playback:
- Normal speed playback
- Jog/shuttle mode playback
- Capstan override playback
- Dynamic Motion Control (DMC) playback

5-2-1 Normal Speed Playback



Playing back at normal speed

1 Insert the cassette.

For details, see "3-5-2 Inserting and Ejecting Cassettes" on page 3-11.

2 Press the PLAY button.

Playback starts and the SERVO indicator lights to show that the servo is locked.

3 Press the STOP button to stop playback.

If playback continues to the end of the tape
The tape automatically rewinds to the beginning and stops.

5-2-2 Variable-Speed Playback in Jog/Shuttle Modes

In jog/shuttle modes, you can vary the playback speed as follows.

Jog mode: Between 0 and ±1 time normal speed as determined by the rotation speed of the search dial.

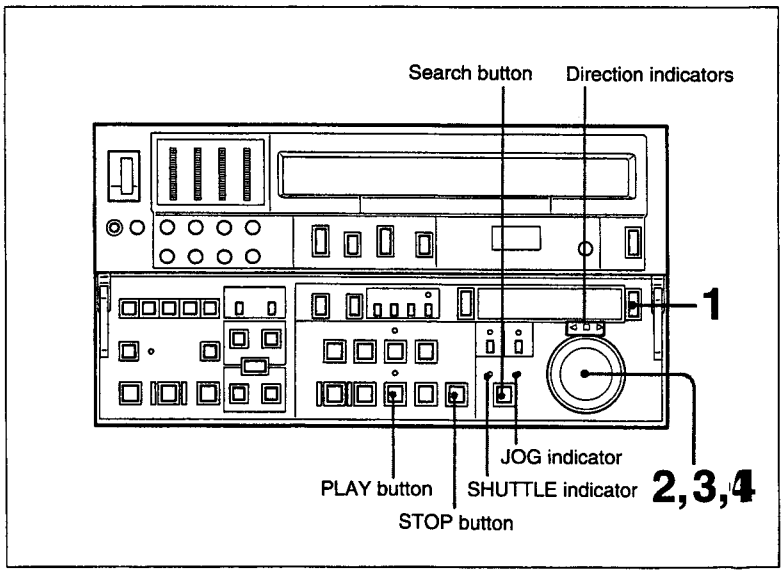
Shuttle mode: With the DT SELECT switch set to

SRC or OFF: Between –35 and +35 times normal speed (for BVW-D75) or –42 and +42 times normal speed (for BVW-D75PS), as determined by the rotation angle of the search dial.

VAR: Between –1 and +3 times normal speed, as determined by the rotation angle of the search dial.

Jog mode playback

Follow the procedure below to play back in jog mode.



Jog/shuttle mode playback

1 Set the DT SELECT switch to VAR or SRC for noiseless playback.

2 Press the search dial to turn on the JOG indicator.

The VTR toggles between jog mode and shuttle mode as you press the dial, and either the JOG or SHUTTLE indicator lights to show the current mode.

The □ indicator lights and the VTR enters still picture mode.

3 Rotate the search dial in the direction of playback.

Slow playback is executed at the speed corresponding to the rotation speed of the search dial. A direction indicator (◁ or ▷) lights to show the direction of playback.

4 To stop jog mode playback, stop rotating the search dial.

The □ indicator lights.

Shuttle mode playback

Follow the procedure below to play back in shuttle mode.

1 Set the DT SELECT switch to one of the following positions.

SRC: Playback speed is variable between –35 and +35 times normal speed (for BVW-D75) or –42 to +42 times normal speed (for BVW-D75PS). Noiseless playback is executed at speeds between –1 and +3 times normal speed. (search mode)

VAR: Playback speed is variable between –1 and +3 times normal speed. Noiseless playback is executed at all speeds within the range. (variable mode)

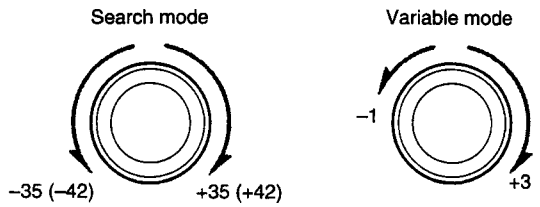
OFF: Playback speed is variable between –35 and +35 times normal speed (for BVW-D75) or –42 to +42 times normal speed (for BVW-D75PS) , but noiseless playback is not possible.

2 Push in the search dial to turn on the SHUTTLE indicator.

The VTR toggles between jog mode and shuttle mode as you press the dial. The JOG or SHUTTLE indicator lights to show the current mode.
The □ indicator lights and the VTR enters still picture mode.
After turning on the power, always set the search dial to the center position, turning on the □ indicator.

3 Rotate the search dial in the direction of playback and set it to the position where the rotation angle corresponds to the appropriate playback speed.

You can set the following playback speeds depending on the playback mode.



The tape is played back at the speed corresponding to the rotation angle of the search dial. One of the direction indicators (◁ or ▷) lights to show the direction of playback.
The search dial clicks at the positions corresponding to −10, 0 and +10 times normal speed.

4 To stop shuttle mode playback, set the search dial to the center position or press the STOP button.

To return to normal speed playback
Press the PLAY button.

To alternate between normal speed playback and shuttle mode playback
After setting the search dial to the position corresponding to the appropriate playback speed, press the PLAY button and search button alternately to switch between normal speed playback and shuttle mode playback.
To alternately stop and start shuttle mode playback, press the STOP button and search button alternately.

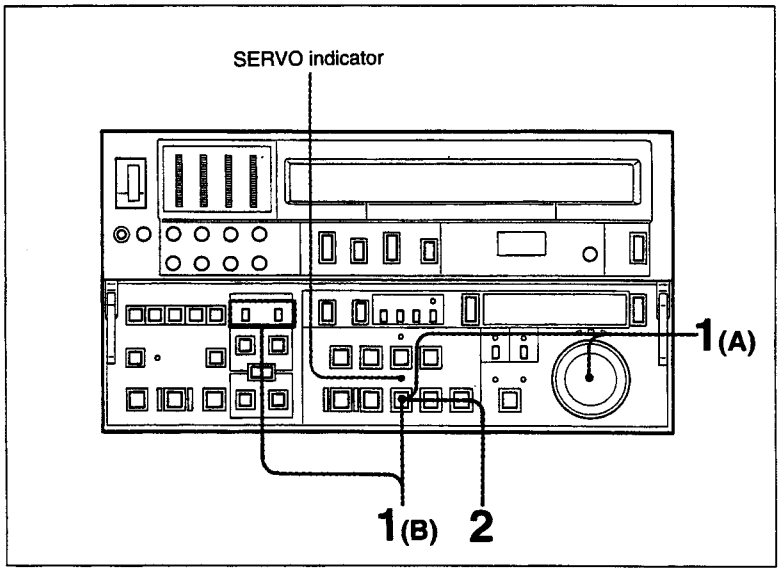
For a setting to disable jog/shuttle mode playback unless the search button is pressed, refer to the maintenance manual.

5-2-3 Capstan Override Playback

When playing back the same program with two VTRs, the playback phases of the two VTRs can be adjusted to synchronize them with each other.
There are two ways to make this adjustment.
(A) Use the search dial
(B) Use the TRIM buttons

Note
When using method (A), change the system setup so that jog/shuttle mode playback is inhibited unless the search button is pressed. Doing so prevents the VTR from entering the search mode accidentally during capstan override playback.

For details on changing the system setup, refer to the maintenance manual.



Playing back using capstan override function

1 Follow either method **(A)** or **(B)**.

(A) Rotate the search dial while holding down the PLAY button to adjust the playback speed.
The adjustment range is ±20% (in steps of 1%) of normal speed.

(B) Press one of the TRIM buttons while holding down the PLAY button to adjust the playback speed.
The adjustment range is ±8%.

While playing back the tape at the adjusted speed, the SERVO indicator remains off since the servo is not locked (capstan override).

2 Release the PLAY button after completing the adjustment of the playback phase.

The VTR returns to normal speed playback and the SERVO indicator lights.

To return to normal speed playback

(A) Return the search dial to the center position.

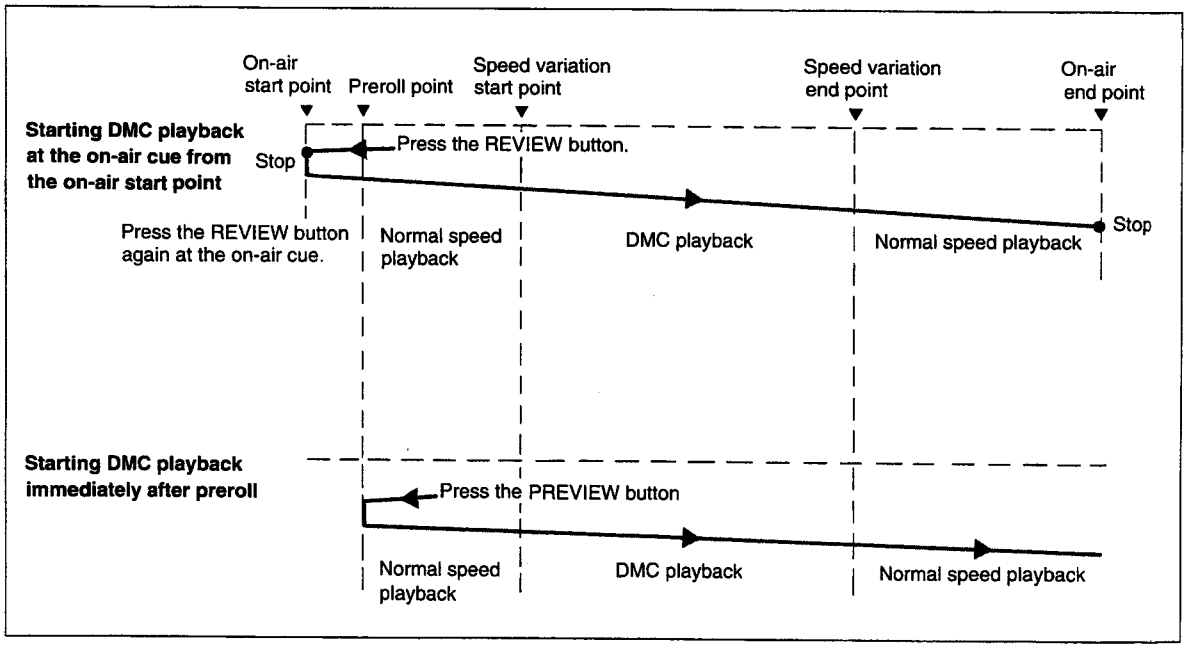
(B) Release the TRIM button.

5-2-4 Dynamic Motion Control (DMC) Playback

Overview of DMC playback

DMC playback allows you to vary playback speed between –1 and +3 times normal speed during a certain section of the tape, then store the varied speeds in memory for later playback.
For example, during a live broadcast of sporting event, you can set the start and end points of important scenes while recording, and immediately play back and broadcast the recorded scenes using DMC playback.

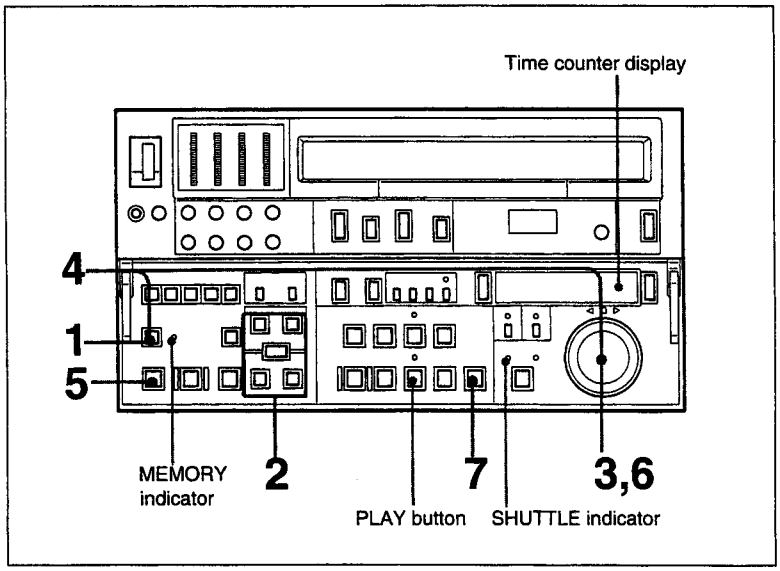
During DMC playback, the tape moves as shown in the diagram below.



Tape movement during DMC playback

Storing playback speeds in memory

Follow the procedure below to store playback speeds in memory for DMC playback.



Storing playback speeds in memory

1 Press the DMC EDIT button, which lights.

2 Press one of the following buttons simultaneously with the ENTRY button during playback or recording to set the start and end points.

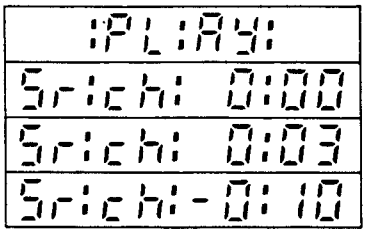
- On-air start point: AUDIO IN button
- Speed variation start point: IN button
- Speed variation end point: OUT button
- On-air end point: AUDIO OUT button

3 Press the search dial to enter shuttle mode.

The SHUTTLE indicator lights.

4 Rotate the search dial while holding down the DMC EDIT button to select the initial playback speed.

The selected speed is shown in the time counter display as follows.



Normal speed playback

Still picture playback

Forward playback at 0.03 times normal speed

Reverse playback at 0.1 times normal speed

While the initial playback speed is being selected, the tape does not move.
When the selection is completed, release the DMC EDIT button.

5 Press the PREVIEW button.

The tape is prerolled and played back at normal speed from the on-air start point to the speed variation start point.
The moment the tape passes the speed variation start point, the MEMORY indicator starts to flash and the tape is played back at the initial speed selected in Step **4**.

6 Set the search dial to the position corresponding to the appropriate playback speed.

Speed variation is stored in memory while the MEMORY indicator is flashing.
The moment the tape passes the speed variation end point, the MEMORY indicator stops flashing and lights to show that the memorization of the playback speed is completed.

7 Press the STOP button to stop the tape.

If the MEMORY indicator lights before the tape comes to the speed variation end point
The VTR can store no further playback speed variations. The capacity of the playback speed memory is 120 seconds.

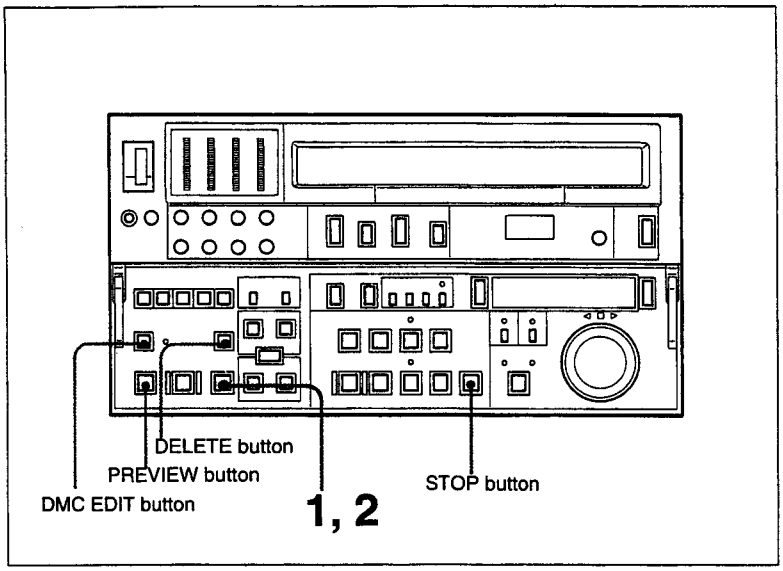
To confirm and change the stored speed
Press the PREVIEW button. Rotate the search dial to change the speed as required.

To set the initial speed to normal speed
Press the PLAY button.

Executing DMC playback

There are two methods of starting DMC playback.
- Starting playback at the on-air cue from the on-air start point
- Starting playback immediately after preroll

Notes
- To avoid operating accidents, it is recommended that you use the VTR alone when performing DMC playback.
- If two VTRs are connected for editing, you can perform DMC playback, but only with the recorder VTR, and only when both the RECORDER and PLAYER buttons are off.



Executing DMC playback

To start playback at the on-air cue from the on-air start point

1 Press the REVIEW button.

The REVIEW button lights and the tape is cued up to the on-air start point. After the tape is cued up, the REVIEW button flashes.

2 At the moment the on-air cue is given, press the REVIEW button again.

The REVIEW button flashes. When the tape passes the speed variation start point, DMC playback starts and continues at the speeds stored in memory. When the tape passes the speed variation end point, normal speed playback starts and the tape stops at the on-air end point.

To start playback immediately after preroll
Press the PREVIEW button.
The PREVIEW button flashes. When the tape passes the speed variation start point, DMC playback starts and continues at the speeds stored in memory. When the tape passes the speed variation end point, normal speed playback starts.

To stop the tape during DMC playback
Press the STOP button.

To exit DMC playback mode
Press the DMC EDIT button simultaneously with the DELETE button.

Chapter 6 Editing

This chapter describes the steps in basic automatic editing operation and introduces various advanced editing methods. It also explains manual editing.

6-1 Basic Automatic Editing 6-1
6-1-1 Overview of Automatic Editing 6-1
6-1-2 Setting Switches 6-3
6-1-3 Selecting Edit Mode 6-4
6-1-4 Setting Edit Points 6-5
6-1-5 Confirming Edit Points 6-9
6-1-6 Cue Up and Preroll 6-11
6-1-7 Preview 6-13
6-1-8 Correcting Edit Points 6-14
6-1-9 Executing Automatic Edit 6-16
6-2 Advanced Editing 6-20
6-2-1 Executing DMC Editing 6-20
6-2-2 Executing Quick Editing 6-23
6-2-3 Executing Continuous Editing 6-25
6-3 Manual Editing 6-26

6-1 Basic Automatic Editing

6-1-1 Overview of Automatic Editing

Automatic edit modes

The VTR allows you to use the following two modes in automatic editing.

- **Assemble mode**
  New scenes are added to the end of existing recorded scenes. CTL signals, video and audio signals on the player tape are recorded on the recorder tape.
- **Insert mode**
  New scenes are inserted into the middle of existing recorded scenes. CTL signals on the recorder tape are not overwritten. Video and audio signals can be recorded separately.

In these two edit modes, you can use DMC editing. In insert mode you can also use split editing.

Interpolation of time codes by the CTL counter
In order to use time codes as the address of edit points, the time codes must be recorded on the tape in ascending order.
As long as they are recorded in ascending order, they do not have to be continuous. The CTL counter automatically interpolates data for editing even if there are breaks in the continuity of time codes.

Time codes recorded during automatic editing
During automatic editing, time codes recorded on the tape always follow continuously upon the time codes already recorded immediately before edit start points, regardless of the setting of the TC EXT/INT switch on the subsidiary control panel and the REGEN/PRESET switch on the system control panel.

For details on switch setting for changing the time codes to be recorded, refer to the maintenance manual.

Steps in automatic editing

The sequence of steps in automatic editing with two VTRs is as shown below.

Select the edit mode (see page 6-4)

↓

Set edit points for recorder and player (see page 6-5)

↓

Preview the edit section (see page 6-13)

↓

Confirm and correct the edit points (see page 6-14)

↓

Execute the edit (see page 6-16)

↓

Confirm the results of the edit (see page 6-18)

Precautions on editing

Using an editing control unit

When using an editing control unit to control the VTR, set the edit delay on the control unit so that CUT-IN and CUT-OUT commands are sent to the VTR three frames before the actual edit point.

Using a BVE-500/500A editing control unit

- You cannot set an edit delay on the control unit. Set the edit delay using the setup menu of the VTR.

  For details on setting the edit delay using the setup menu, refer to the maintenance manual.

- In these editing control units, the record command serves as the assemble command. After powering the VTR and control unit on, press the ASSEMBLE button of the VTR (the recorder) to declare the start of editing. This operation sets the drum phase to the recording phase and makes the VTR ready for editing.
  To return to a state in which normal speed playback is possible (the drum phase is advanced), either turn off the ASSEMBLE and INSERT buttons or set the REC INHIBIT switch to ON.

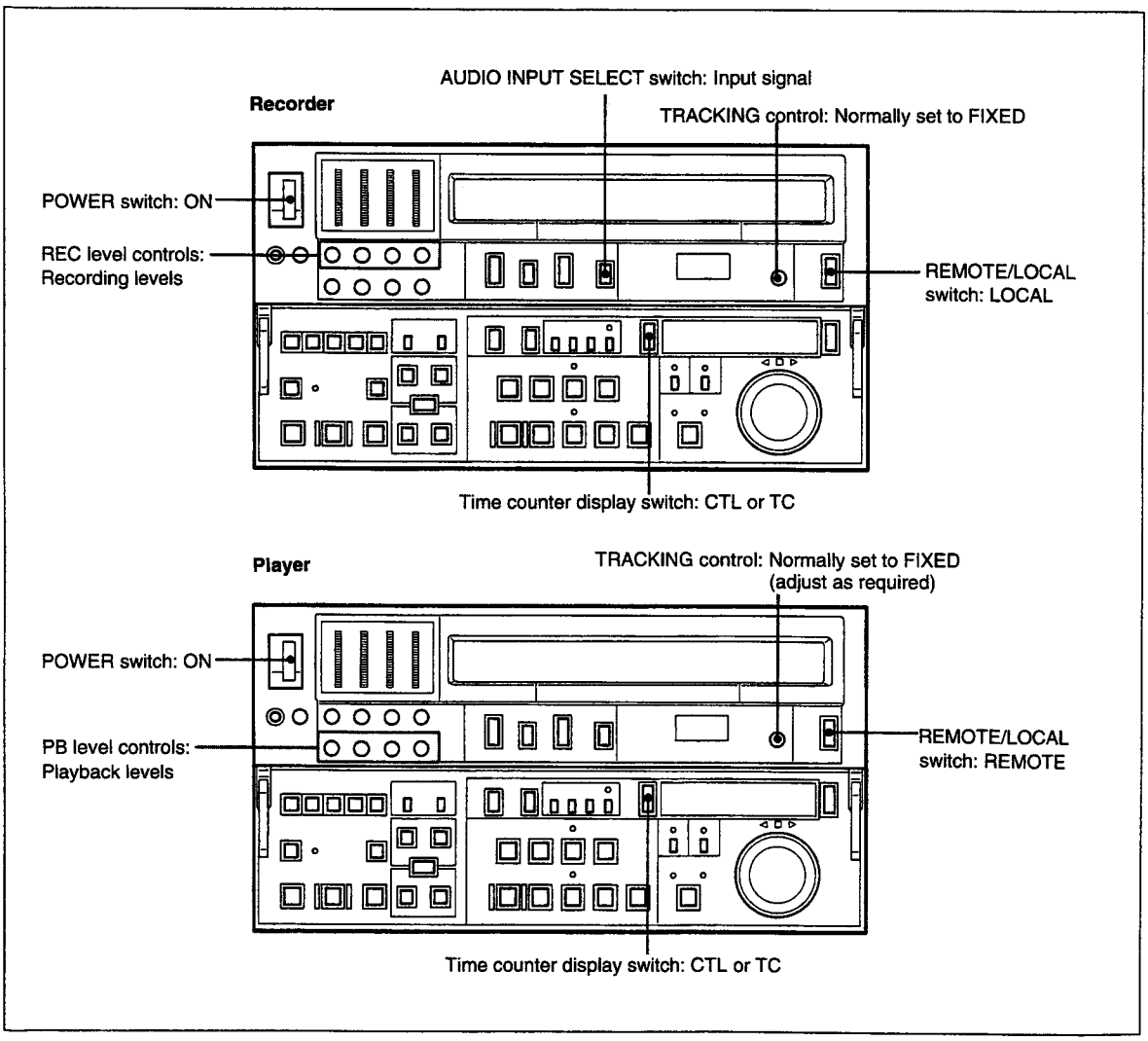
Video signals output to a monitor

When the VTR enters edit mode, the drum phase stops advancing by 24H and changes into recording phase. As a result, the V-sync phase output from the MONITOR OUTPUT connectors of the VTR is not synchronized with the reference signal. If this is inconvenient, you can change the position of V-blanking on the monitor screen.

For details on changing the V-blanking position, refer to the maintenance manual.

6-1-2 Setting Switches

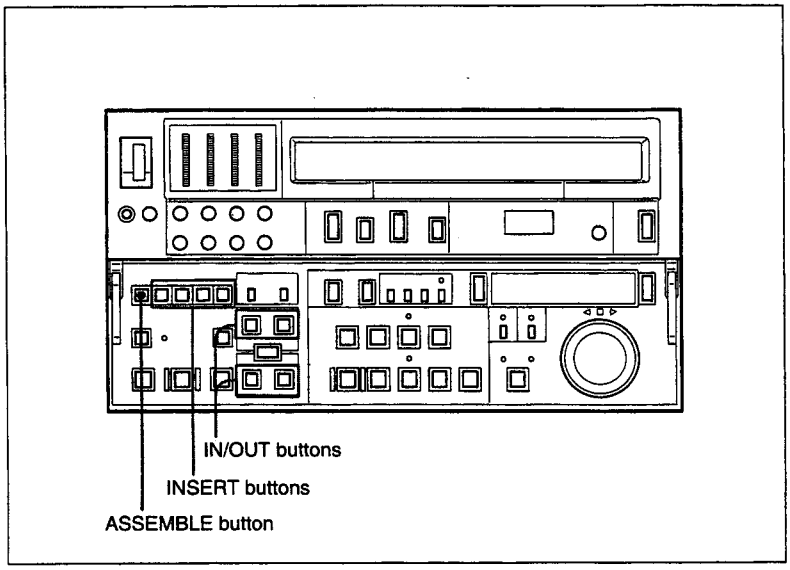
Before editing, set the switches shown below.



Switch settings for editing

6-1-3 Selecting Edit Mode

Select either assemble or insert mode.



Selecting edit mode

Press one of the following buttons.

- Assemble mode: ASSEMBLE button
- Insert mode: Appropriate INSERT button (VIDEO, AUDIO CH-1, AUDIO CH-2 or TIME CODE)

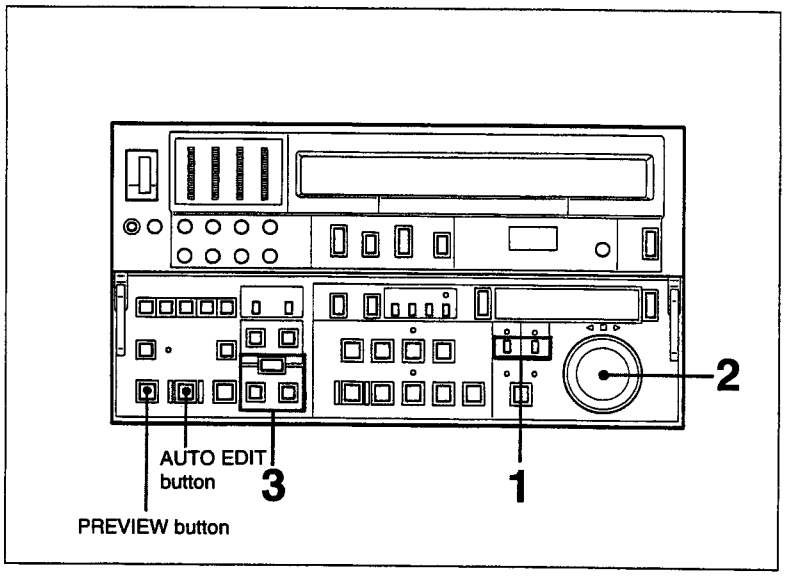
When the edit mode is selected, the IN/OUT buttons flash to show that edit points need to be set.

6-1-4 Setting Edit Points

This section describes how to set edit points (IN and OUT points). In insert mode, a technique called split editing allows you to set edit points separately for video and audio.

Setting edit points

Follow the procedure below to set edit points.



Setting edit points

1 Press the RECORDER or PLAYER button to select the VTR for which edit points are set.

The indicator above the button lights.

2 Rotate the search dial in jog or shuttle mode to find the edit point.

See "5-2-2 Variable-Speed Playback in Jog/Shuttle Modes" on page 5-6 for details on jog/shuttle playback.

3 Press the ENTRY button simultaneously with the IN (or OUT) button.

When the IN (or OUT) point is set, the IN (or OUT) button stops flashing and lights.

4 Repeat Steps **1** through **3** to set all of the required edit points.

When IN points are set for both recorder and player, the PREVIEW and AUTO EDIT buttons flash to show that the VTR is ready for preview or edit.

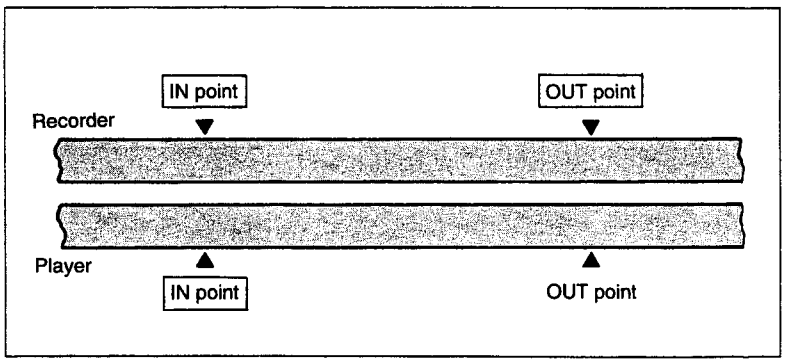
Note

If you set four or more edit points for recorder and player, the DELETE button starts to flash, to indicate that editing is impossible. Delete unnecessary edit points using the DELETE button.

For details, see "Deleting edit points" on page 6-14.

About automatic edit point setting

Editing requires a total of four edit points; IN and OUT points each for recorder and player. However, as soon as you set three edit points, the VTR automatically sets the fourth point. In the diagram below, the boxed points have been set manually, and the player OUT point has been set automatically.

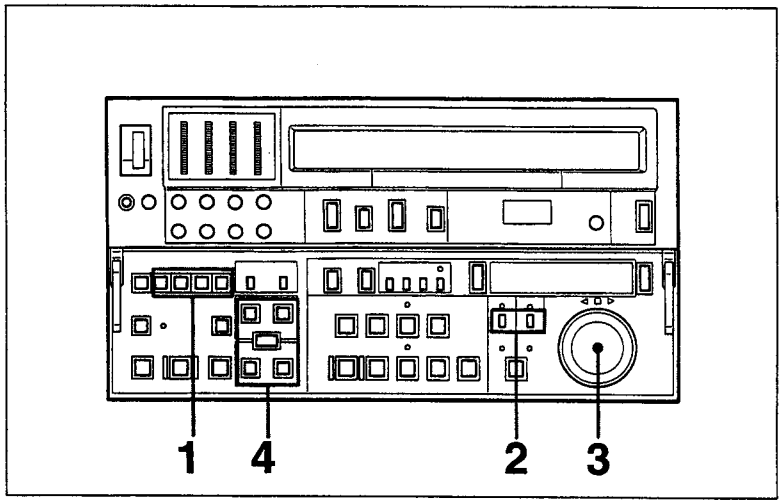


Automatic edit point setting

Regardless of whether it was set manually or automatically, any edit point can be corrected or deleted later.

Setting split edit points

Split editing allows you to set edit points separately for video (and AFM audio) and audio (LNG audio). Set audio edit points with the AUDIO IN/OUT buttons and video edit points with the IN/OUT buttons.



Setting split edit points

1 Press the appropriate INSERT buttons (VIDEO, AUDIO CH-1, AUDIO CH-2 or TIME CODE).

The IN, OUT, AUDIO IN and AUDIO OUT buttons flash.

2 Press the RECORDER or PLAYER button to select the VTR for which edit points are set.

The indicator above the button lights.

3 Rotate the search dial in jog or shuttle mode to find the edit point.

See "5-2-2 Variable-Speed Playback in Jog/Shuttle Modes" on page 5-6 for details on jog/shuttle playback.

4 Press the ENTRY button simultaneously with one of the IN, OUT, AUDIO IN or AUDIO OUT buttons.

When the edit point is set, the button which was pressed stops flashing and lights.

5 Repeat Steps **2** through **4** and set required edit points.

Note

During split editing, if you set six or more edit points for recorder and player, the DELETE button starts to flash, to indicate that editing is impossible. Delete unnecessary edit points using the DELETE button.

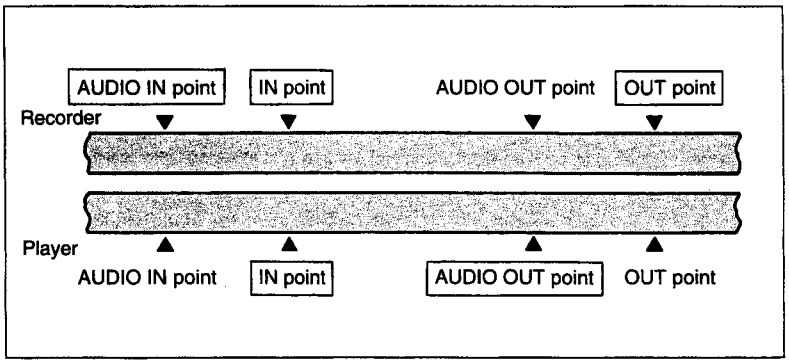
For details, see "Deleting edit points" on page 6-14.

About automatic split edit point setting

Split editing requires a total of eight edit points; video IN/OUT points and audio IN/OUT points each for player and recorder. However, as soon as you set five edit points, the VTR automatically sets the remaining three edit points. For example, if you set three edit points for video (or audio) and two edit points for audio (or video), the remaining three points are automatically set, regardless whether these points are for recorder or player.

In the example shown in the diagram below, the boxed points have been set manually, and the AUDIO OUT point for recorder, and AUDIO IN point and OUT point for player have been set automatically.

Note that regardless of whether it was set manually or automatically, any edit point can be deleted or corrected later.



Automatic split edit point setting

When the AUDIO IN point is not set for insert editing of audio only

As long as the AUDIO OUT point is set, the VTR is ready for preview or editing. If the AUDIO IN point has not been set, the current tape address is automatically set as the AUDIO IN point.

Using a VTR without a split editing function

When using a player VTR which does not allow you to set edit points separately for video and audio, set AUDIO IN and AUDIO OUT points on the recorder and three video edit points for split editing.

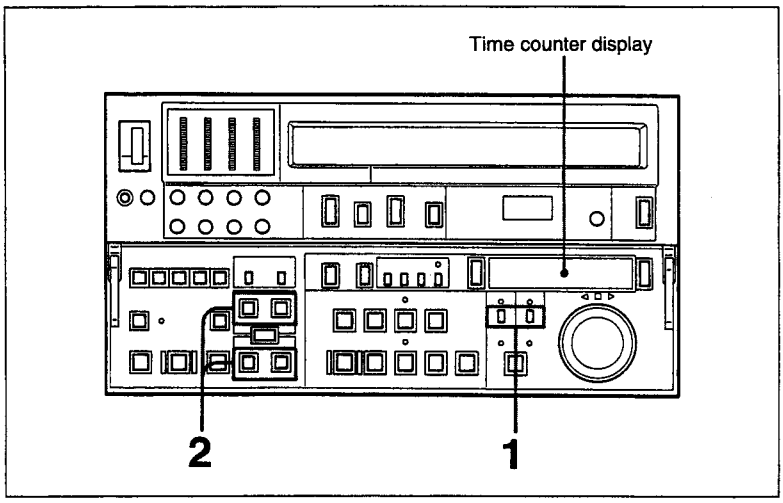
6-1-5 Confirming Edit Points

You can confirm the following types of data in the time counter display.

- Time data for edit points
- Duration between two edit points

Confirming time data for edit points

Follow the procedure below to display time data for edit points in the time counter display.



Confirming edit point time data

1 Press the RECORDER or PLAYER button to select the VTR on which you wish to confirm edit points.

The indicator above the button lights.

2 Hold down the IN, OUT, AUDIO IN or AUDIO OUT button.

The time data for the edit point corresponding to the button is displayed in the time counter display.

Displaying duration between two edit points

The following six kinds of duration can be displayed in the time counter display.

- Between IN and OUT points
- Between IN and AUDIO OUT points
- Between IN and AUDIO IN points
- Between OUT and AUDIO OUT points
- Between OUT and AUDIO IN points
- Between AUDIO IN and AUDIO OUT points

The displayed duration differs for each of the following cases.

- When two edit points are set: Duration between the two points
- When only one of the edit points is set: Duration between the set edit point and the current tape address
- When no edit point is set: Duration of the previous edit section

Follow the procedure below to display duration.

1 Press the RECORDER or PLAYER button to select the VTR on which you wish to confirm duration.

The indicator above the button lights.

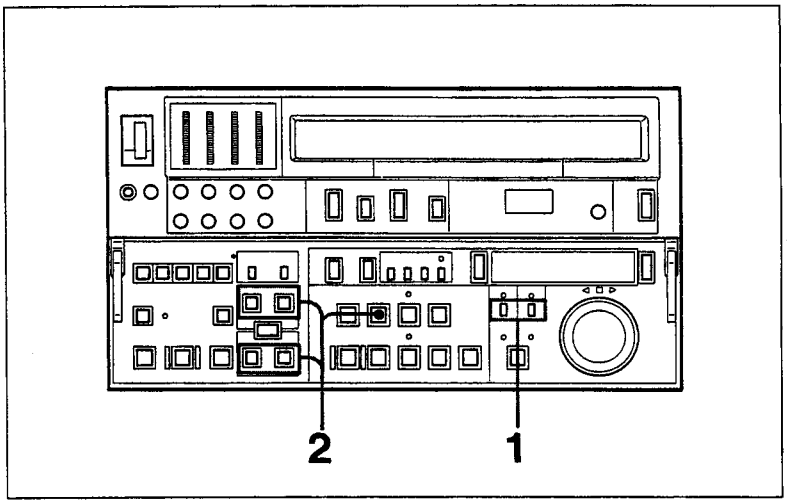
2 Hold down any two of the IN, OUT, AUDIO IN and AUDIO OUT buttons.

The duration between the points corresponding to the buttons is displayed in the time counter display. The displayed value can be minus.

6-1-6 Cue Up and Preroll

You can preroll the tape to the point before the edit start point (preroll point), or cue up the tape to any edit point. When prerolling the tape in split editing, the VTR regards the earlier of the IN or AUDIO IN points as the edit start point.

Follow the procedure below to cue up or preroll the tape.



Cue up and preroll

1 Press the RECORDER or PLAYER button to select the VTR to operate.

The indicator above the button lights.

2 **To cue up the tape to the edit point:**
Press the PREROLL button simultaneously with the IN, OUT, AUDIO IN or AUDIO OUT button.
The tape moves to the edit point corresponding to the button and stops.

To preroll the tape:
Press the PREROLL button.
The tape is rewound to a point five seconds before the edit start point.

Changing the preroll time

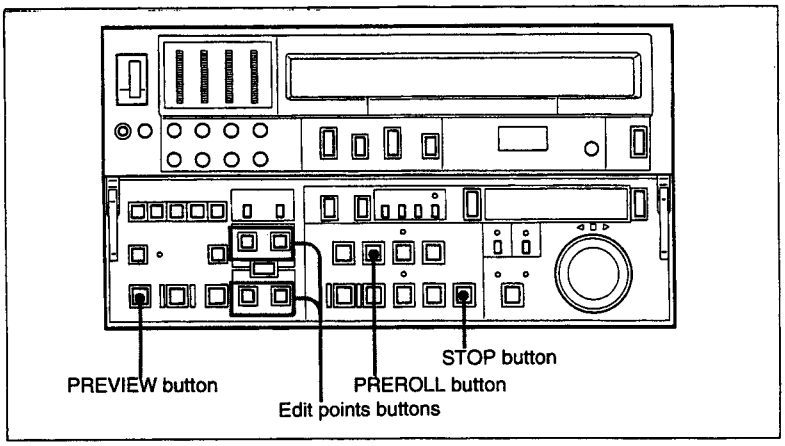
The preroll time is factory set to 5 seconds, but can be set to any time between 0 and 15 seconds, in 1 second steps.

For details on changing the preroll time, see "3-4-2 Changing Menu Settings" on page 3-9.

When changing the preroll time, set it so that the recorded section before the edit start point is longer than the preroll time.
The preroll time used in automatic editing is the preroll time set for the recorder.

6-1-7 Preview

When all the necessary edit points are set, the PREVIEW button flashes to show that the VTR is ready for preview.



Previewing

Press the PREVIEW button to preview the results of the edit.

During preview, the PREVIEW button is lit.
After preview, correct the edit points as required, and preview again.

For details on correcting the edit points, see "6-1-8 Correcting Edit Points" on page 6-14.

To stop the preview
Press the STOP button.
The tape stops immediately.

To rewind the tape to the preroll point
Press the PREROLL button.

To rewind the tape to the edit point
Press the PREROLL button simultaneously with the button corresponding to the edit point.

Monitoring during preview

During preview, you can view the following video and audio signals on the monitor connected to the recorder.

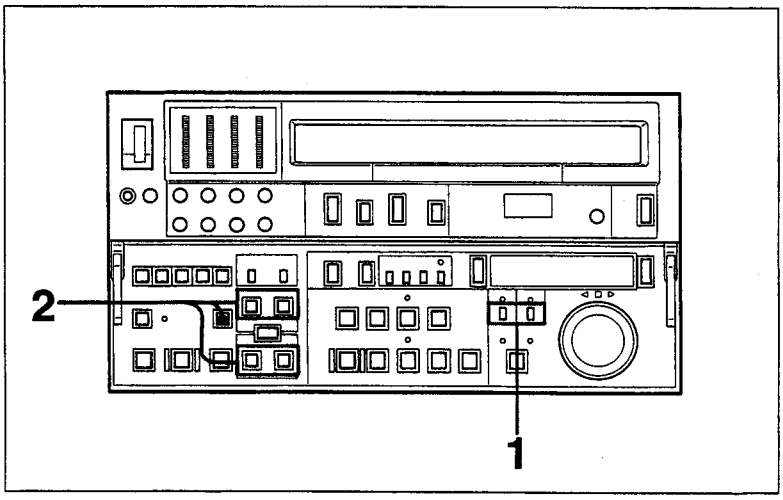
	IN point ▼	OUT point ▼
PB (recorder)	EE (player)	PB (recorder)

In preview, R/P (record/playback) heads are used regardless of the setting of the DT SELECT and CONFI switches.

6-1-8 Correcting Edit Points

If edit points are set incorrectly, for example, if an OUT point is located before an IN point or the length of edit section is different for the recorder and player, the DELETE button flashes to show that the VTR cannot edit or preview. In this case, delete the incorrect edit points and set the correct edit points.
Even if the DELETE button is not flashing, edit points can be deleted in the manner described in this section. You can correct the edit points in units of one frame.

Deleting edit points



Deleting edit points

1 Press the RECORDER or PLAYER button to select the VTR on which you delete the edit point.

The indicator above the button lights.

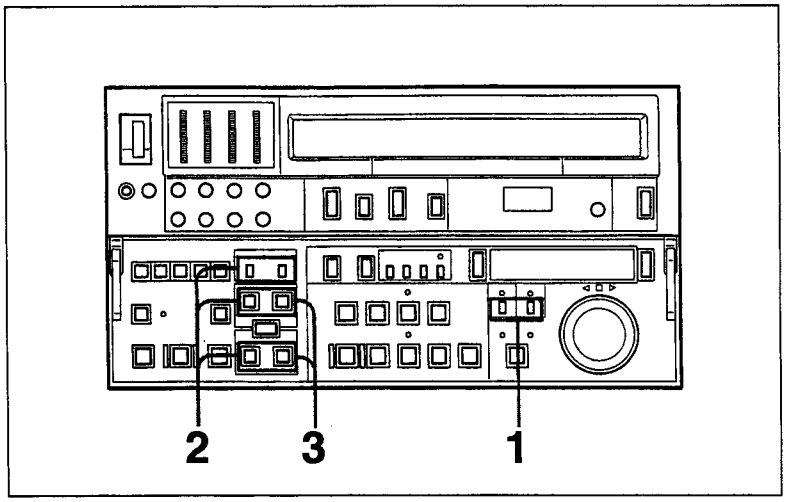
2 Press the DELETE button simultaneously with the IN, OUT, AUDIO IN or AUDIO OUT button.

The DELETE button goes off and the edit point corresponding to the button is deleted. The correct edit point is set automatically.

If the button pressed with the DELETE button flashes
Set a new edit point.

To turn off the DELETE button without deleting an edit point
Press the DELETE button.
The DELETE button goes off but no edit point is deleted.

Correcting edit points



Correcting edit points

1 Press the RECORDER or PLAYER button to select the VTR on which you correct the edit point.

The indicator above the button lights.

2 Press one of the TRIM buttons (+ or –) simultaneously with the IN, OUT, AUDIO IN or AUDIO OUT button.

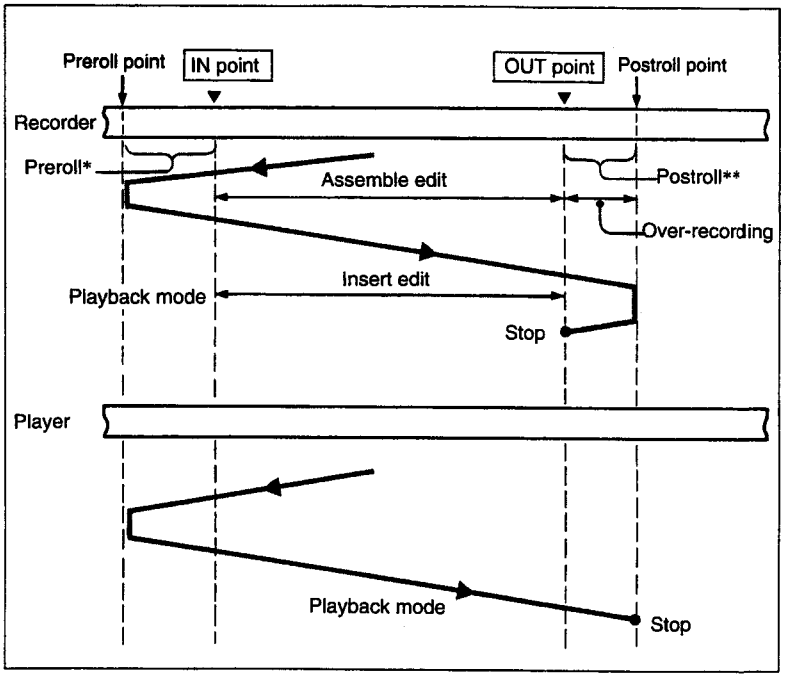
The time data for the edit point corresponding to the button is displayed, and when the + or – button is pressed, the edit point moves one frame forward or backward.

3 Release the button corresponding to the edit point when the correction is completed.

6-1-9 Executing Automatic Editing

Overview

Once the necessary edit points are set, the AUTO EDIT button flashes to show that the VTR is ready for automatic editing.
During automatic editing, the recorder and player tapes move as shown in the diagrams below.



Tape movement during automatic editing

*Preroll time: Factory set to 5 seconds. Using the setup menu, it can be set to anywhere between 0 and 15 seconds, in one-second steps.
**Postroll time: 2 seconds

Monitoring edit
During the edit, you can monitor the following video and audio signals on the monitor connected to the recorder.

	IN point ▼	OUT point ▼
PB (recorder)	EE (player)	PB (recorder)

In preview, automatic editing and review, R/P (record/playback) heads are used regardless of the setting of the DT SELECT switch.

Viewing recorder and player tapes on one monitor
Using the following method allows you to execute editing efficiently even if only one monitor is available.

1 Connect the monitor to the recorder.

2 Set the value for Item 008 on the setup main menu to 1.

For changing the menu setting, see "3-4-2 Changing Menu Settings" on page 3-9.

3 Press the PLAYER button on the recorder VTR to put the recorder into E-E mode.

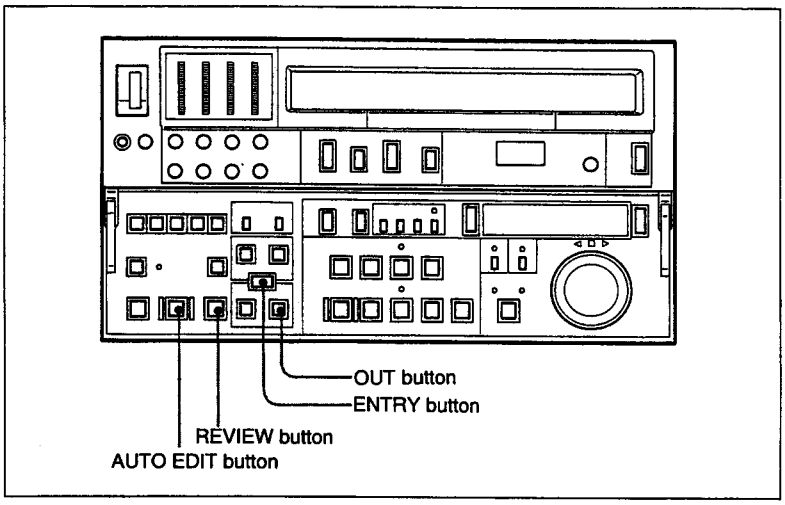
Playback signals from the player are output to the monitor.

Note
Insert edit requires that CTL signals be recorded on the recorder tape. Sections of the tape where CTL signals are not recorded cannot be used for insert edit. If CTL signals are not recorded, noise instead of E-E video appears on the monitor screen to show that editing is impossible.

Starting editing

Press the AUTO EDIT button to start the edit.

The AUTO EDIT button stays lit during the edit, and goes off when it ends.



Starting editing

To stop editing
Press the ENTRY button simultaneously with the OUT button.
The point where the buttons are pressed is regarded as an OUT point and the edit ends at that point.

To confirm results of the edit
Press the REVIEW button to confirm the results after editing.
When the review ends, the tape is rewound to the OUT point and stops.

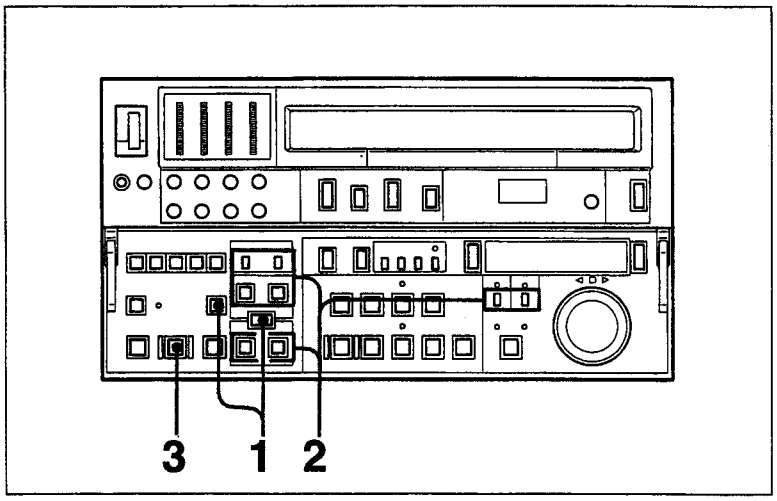
Correcting edit points for later automatic editing

When you execute an automatic edit, the IN, OUT, AUDIO IN and AUDIO OUT buttons go off but the time data for the edit points remains stored in memory. Using the stored data, you can correct the edit points and execute another automatic edit, even after you have completed the previous one.

Note

This function does not work when new edit points are set after executing an automatic edit, since the previous time data is overwritten.

Follow the procedure below to correct the edit points after executing an automatic edit.



Correcting edit points for later automatic editing

1 Press the DELETE button and ENTRY button simultaneously.

The edit points used for the previous automatic editing are restored.

2 Correct the edit points.

For details on correcting edit points, see "6-1-8 Correcting Edit Points" on page 6-14.

3 Press the AUTO EDIT button.

The VTR executes the automatic edit.

6-2 Advanced Editing

This section explains the following advanced editing methods.
- DMC editing
- Quick editing
- Continuous editing

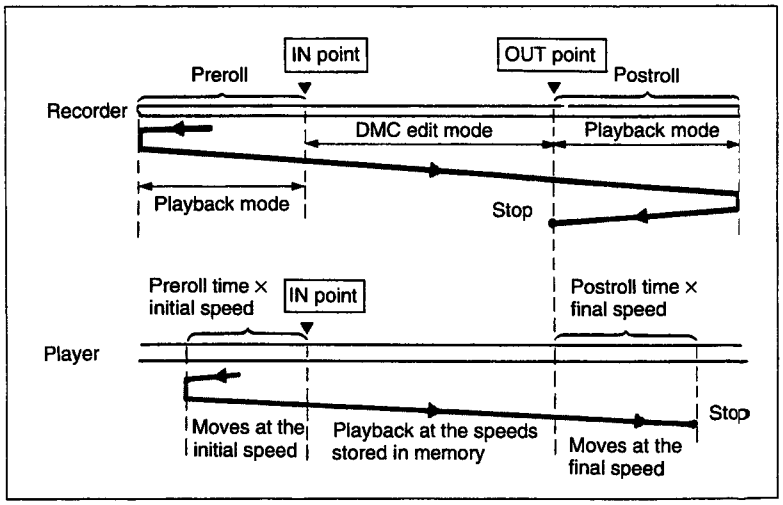
6-2-1 Executing DMC Editing

Using a VTR equipped with DT (Dynamic Tracking) capability as a player allows you to perform variable-speed editing by controlling the playback speed of the player from the BVW-D75/D75PS. This type of editing is called DMC editing.

Overview

Requirements for DMC editing
- DMC editing is possible in either assemble or insert edit mode, but not possible when executing split edit.
- The player VTR must be capable of DT playback.

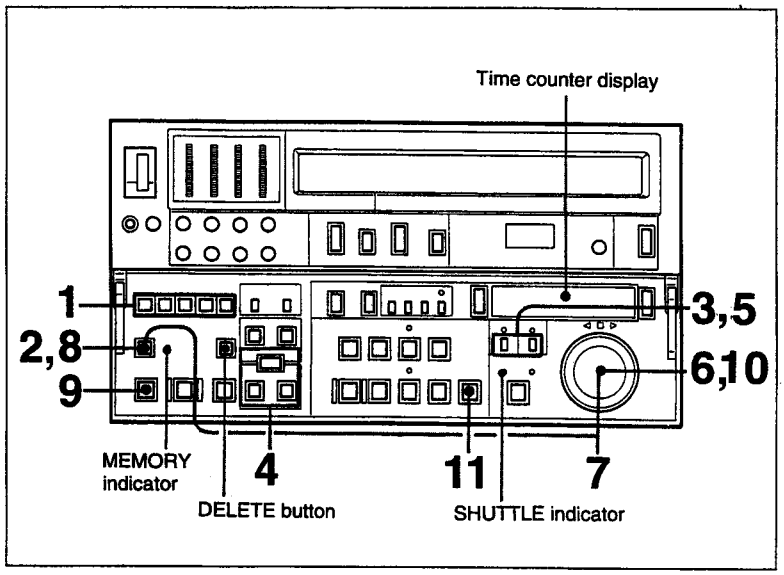
Tape movement during DMC editing
The tape moves as shown in the diagram below during DMC editing.



Tape movement during DMC editing

Setting edit points and playback speeds

Follow the procedure below to set the edit points and playback speeds for DMC editing.



Setting edit points and playback speeds

1 Press the ASSEMBLE or INSERT button to select edit mode.

2 Press the DMC EDIT button.

The DMC EDIT button lights and the VTR enters DMC edit mode.

3 Press the RECORDER or PLAYER button to select the VTR to operate.

The indicator above the button lights.

4 Press the ENTRY button simultaneously with the IN or OUT button to set an edit point. Note that you cannot set an OUT point for the player.

5 Press the PLAYER button.

The indicator above the button lights.

6 Press the search dial to enter shuttle mode.

The SHUTTLE indicator lights.

7 Rotate the search dial while holding down the DMC EDIT button to set the initial playback speed.

The time counter display shows the set speed.
If you wish to set the initial speed to normal speed, press the PLAY button.

8 When the initial speed has been set, release the DMC EDIT button.

9 Press the PREVIEW button.

The tape is prerolled. The recorder tape runs at the normal speed and the player tape runs at the initial speed.

10 When the MEMORY indicator starts to flash, indicating that the tape has reached the IN point, rotate the search dial to the positions corresponding to the appropriate playback speeds.

The variations in playback speed are stored in memory while the MEMORY indicator is flashing.
When the tape passes the OUT point, the MEMORY indicator stops flashing and lights to show that the memorization of playback speeds is completed.

11 Press the STOP button to stop the tape.

If the MEMORY indicator lights before the tape passes the OUT point
The VTR cannot store any more variations in playback speed. The capacity of the playback speed memory is 120 seconds.

To exit DMC edit mode
Press the DMC EDIT button simultaneously with the DELETE button. The DMC EDIT button goes off.

Executing DMC editing

After storing the playback speeds in memory in preview mode, press the AUTO EDIT button to execute the DMC edit.

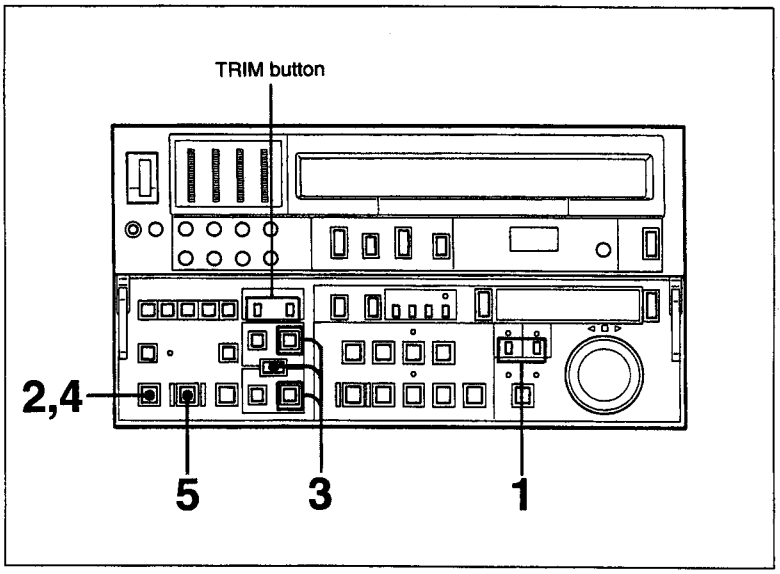
DMC edit is executed at the playback speeds stored in memory. Once the DMC edit is executed, the playback speeds in memory are cleared.

To confirm the results of the edit
Press the REVIEW button.

6-2-2 Executing Quick Editing

After selecting the edit mode, you can save editing time by setting edit points and previewing the results at the same time.

To execute quick editing, proceed as follows.



Executing quick editing

1 Press the PLAYER or RECORDER button to select the VTR to operate. Find an IN point and stop the tape at the IN point. Repeat for recorder or player.

2 Press the PREVIEW button to execute a preview.

The points selected in Step **1** are set as IN points and the IN buttons on both player and recorder light.

3 When the tape comes to the appropriate OUT point, press the ENTRY button and OUT button simultaneously.

The OUT point is set and the OUT button stops flashing and lights. After two seconds, both the player and recorder tapes stop.

4 Execute preview again and correct the edit points using the TRIM buttons as required.

5 Press the AUTO EDIT button.

Editing starts.
When the edit ends, the recorder tape stops at the OUT point and the player tape stops two seconds after the OUT point.

To save even more editing time

1 Press the PLAYER or RECORDER button to select the VTR to operate. Find an IN point and stop the tape at the IN point. Repeat for recorder or player.

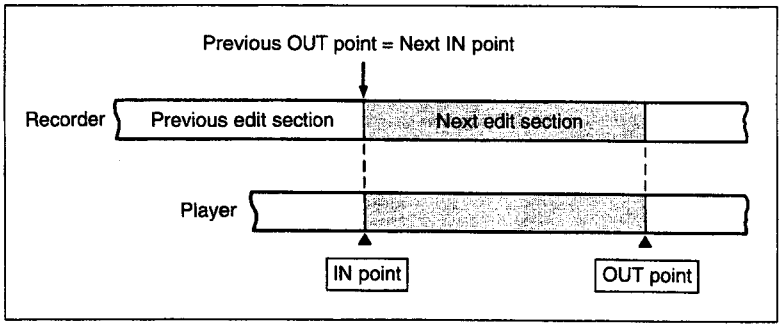
2 Press the AUTO EDIT button to start the edit.

3 As you view the monitor, press the ENTRY and OUT buttons simultaneously at the point where you wish to stop editing.

The point where you started editing is the IN point, and the point where you stopped editing is the OUT point.

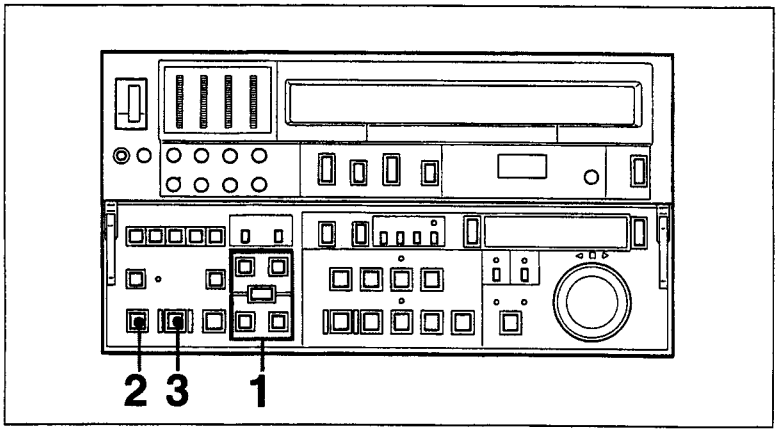
6-2-3 Executing Continuous Editing

When automatic editing ends, the recorder tape is automatically rewound to the OUT point. From the next edit on, you can set IN and OUT points for the player only. This technique is called continuous editing. The OUT point for the recorder will be the IN point for the next edit.



Continuous editing

Follow the procedure below to execute continuous editing.



Executing continuous editing

1 Set IN and OUT points for the player.

2 Press the PREVIEW button to preview.

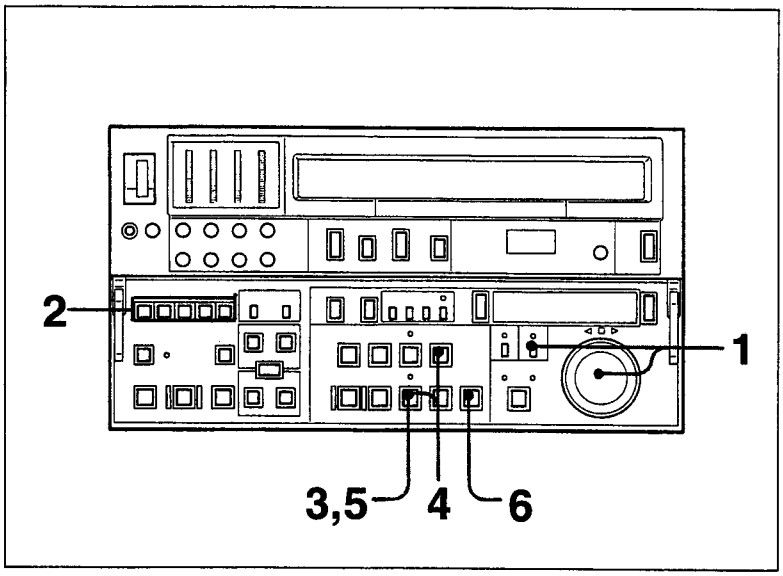
3 Press the AUTO EDIT button.

The edit starts.
When the edit ends, the recorder tape stops at the OUT point and the player tape stops two seconds after the OUT point.

To stop editing
Press the ENTRY button and OUT button simultaneously.

6-3 Manual Editing

To execute manual editing, follow the procedure below.



Manual editing

1 After pressing the RECORDER button, find an edit point in jog or shuttle mode. Stop the tape a little before the edit point.

2 Press the ASSEMBLE button or the appropriate INSERT button to select the edit mode.

3 Press the PLAY button.

Playback starts.

4 Press the EDIT and PLAY buttons simultaneously at the point at which you wish to start editing (the IN point).

The edit starts.

5 Press the PLAY button at the point at which you wish to end editing (the OUT point).

The edit ends, but the tape continues to run in playback mode.

6 Press the STOP button to stop the tape.

Notes

- Note that noise appears on the picture at the edit start point if you start an edit while the VTR is in stop mode.
- Start playback at least two seconds before the edit start point in order to obtain a stable picture.

Appendix

Head Cleaning A-1
Moisture Condensation A-2
Superimposed Characters A-3
Specifications A-6
Glossary A-13

Head Cleaning

Clean the video and audio heads using the special BCT-5CLN cleaning cassette. Read the instructions for the cleaning cassette carefully, as improper usage can damage the heads.

Note

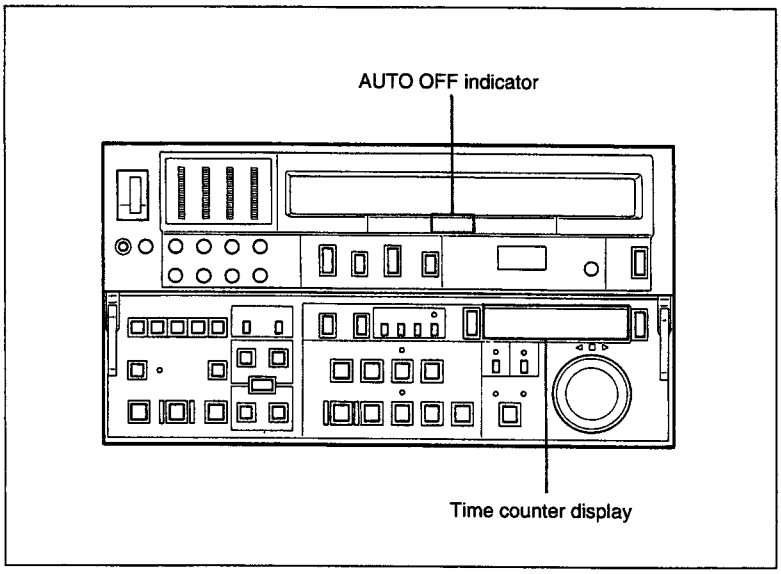
Be sure to eject the cleaning cassette after cleaning to avoid damages to the heads.

Moisture Condensation

If moisture condensation occurs while operating the VTR

When the VTR is suddenly moved from a cold to a warm location, or used in a very humid place, moisture from the air can condense on the head-drum. This is called moisture condensation. If the tape is run in this state, the tape can adhere to the drum.

If moisture condenses on the head-drum while you are operating the VTR, the AUTO OFF indicator lights and "Error-10" is displayed in the time counter display.



If moisture condensation occurs

If this happens, the drum and capstan motors stop and the cassette is automatically ejected. Then, the drum starts to rotate again to dry the surface of drum.
When the moisture has evaporated, the AUTO OFF indicator goes off and the error message disappears.

If the AUTO OFF indicator lights and "Error-10" appears immediately after powering the VTR on
Leave the VTR powered on and wait until the indicator goes off.
While the indicator is lit, you cannot insert a cassette.
When the indicator goes off and the error message disappears, you can use the VTR.

If you move the VTR from a cold to a warm location
Leave the VTR powered off for about 10 minutes, in order to give the VTR time to detect moisture condensation.

Superimposed Characters

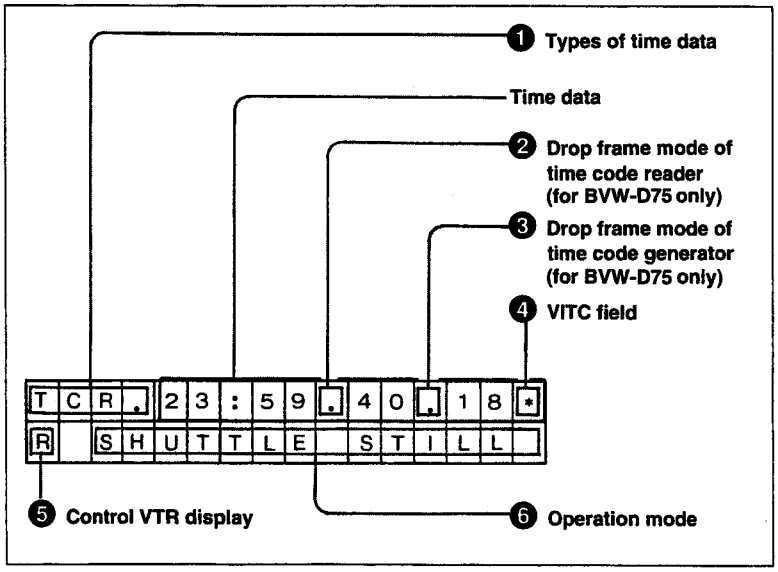
If you set the CHARACTER switch on the system control panel to ON, character messages to show time codes and operation modes are superimposed on the signals output from the MONITOR OUTPUT connectors.

Adjusting the character display

You can adjust the position, size and type of superimposed characters using the setup menu.

For details, see "3-4-2 Changing Menu Settings" on page 3-9.

Information displayed


❶ Types of time data
Time data
❷ Drop frame mode of time code reader (for BVW-D75 only)
❸ Drop frame mode of time code generator (for BVW-D75 only)
❹ VITC field
TCR. 23:59.40. 18*
R SHUTTLE STILL
❺ Control VTR display
❻ Operation mode

Displayed information

❶ Types of time data

Display	Meaning
CTL	CTL counter data
TCR	LTC reader time code
UBR	LTC reader user bits
TCR.	VITC reader time code
UBR.	VITC reader user bits
TCG	Time code generator time code
UBG	Time code generator user bits
IN	IN point or DMC memory start point
OUT	OUT point or DMC memory end point
AI	AUDIO IN time data
AO	AUDIO OUT time data
DUR	The duration between any two of the four edit points (IN, OUT, AUDIO IN, AUDIO OUT)

Note

If the time data or user bits cannot be read correctly, they will be displayed with an asterisk, for example as "T*R", "U*R", "T*R." or "U*R.".

❷ Drop frame mode for time code reader (for BVW-D75 only)

❸ Drop frame mode for time code generator (for BVW-D75 only)

" . ": Drop frame mode (factory preset)
" : ": Non-drop-frame mode

❹ VITC field

" "**(blank):** Fields 1 and 3
"*": Fields 2 and 4

❺ Control VTR display

When editing with two VTRs, indicates whether the control panel of the VTR controls the recorder or the player. When not editing with two VTRs, nothing is displayed in this field.

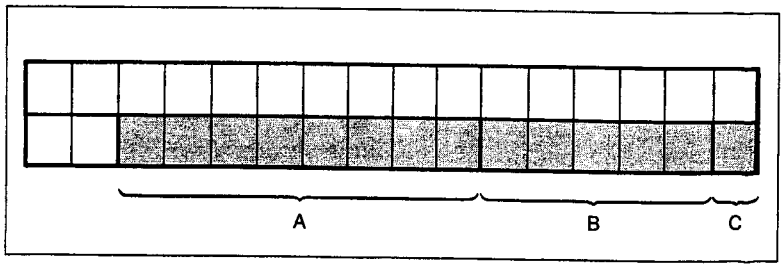
R: The control panel controls the recorder (the RECORDER indicator on the control panel is lit).

P: The control panel controls the player (the PLAYER indicator on the control panel is lit).

❻ Operation mode

The field is divided into three blocks, A, B and C.

- Block A displays the operation mode.
- Block B displays the servo lock status or tape speed.
- Block C displays the ■ mark to indicate an edit section during automatic editing and memorization period during memorization and playback in DMC mode.



Operation mode display

Operation mode messages

Message		Operation mode
Block A	Block B	
TAPE UNTHREAD		Displayed from the time the EJECT button is pressed and the cassette is ejected to the next time the cassette is inserted.
STANDBY OFF		Standby off mode
T. RELEASE		Tape tension released
STOP		Stop mode
F. FWD		Fast forward mode
REW		Rewind mode
PAUSE		Pause mode
PREROLL		Preroll mode
PLAY		Playback mode (servo unlocked)
PLAY	LOCK	Playback mode (servo locked)
PLAY	Speed deviation from normal speed (%)	Capstan override mode or program play mode
REC		Record mode (servo unlocked)
REC	LOCK	Record mode (servo locked)
EDIT		Edit mode (servo unlocked)
EDIT	LOCK	Edit mode (servo locked)
JOG	STILL	A still picture in jog mode
JOG	FWD	Jog mode in forward direction
JOG	REV	Jog mode in reverse direction
SHUTTLE	Speed	Shuttle mode
VAR	Speed	Variable mode
DMC	Speed*	DMC playback mode
D-PREV	Speed*	Preview in DMC edit mode
D-EDIT	Speed*	DMC edit mode
DMC-SPD	Speed	DMC initial speed setting
PLV-SPD	Speed deviation from normal speed (%)	Speed setting for program play
PREVIEW		Preview mode
AUTO EDIT		Automatic editing mode
REVIEW		Review mode

* Initial speed or speed stored in memory.

Specifications

General

Power requirements	90 to 265 V AC, 48 to 64 Hz
Power consumption	210 W
Operating temperature	5°C to 40°C (–41°F to +140°F)
Storage temperature	–20°C to +60°C (–4°F to +140°F)
Humidity	80% or less
Weight	30 kg (66 lb 3 oz)
Dimensions	427 × 237 × 549 mm (w/h/d) (16 3/4 × 9 3/8 × 21 5/8 inches)
Tape speed	BVW-D75: 118.58 mm/s BVW-D75PS: 101.51 mm/s
Record/playback time	BVW-D75: 90 minutes or longer with a BCT-90ML cassette BVW-D75PS: 100 minutes or longer with a BCT-90ML cassette
Fast forward/rewind time	180 seconds or less with a BCT-90ML cassette
Search speed	Shuttle mode: BVW-D75: 21 steps, still to 35 times normal speed, forward and reverse BVW-D75PS: 21 steps, still to 42 times normal speed, forward and reverse Variable mode: 54 steps, –1 to +3 times normal speed Jog mode: Still to 1 time normal speed in forward and reverse
DT (Dynamic tracking) range	–1 to +3 times normal speed
Recommended tapes	1/2-inch cassette for "Betacam" or "Betacam SP" videocassette recorder metal tapes: BCT-5M/10M/20M/30M/ 5ML/10ML/20ML/30ML/ 60ML/90ML or equivalent Oxide tapes: BCT-5G/10G/20G/30G/ 5GL/10GL/20GL/30GL/ 60GL/90GL or equivalent

Video

Video recording	Luminance: FM Color difference: FM (Compressed Time Division Multiplex)
Input/output parameter	Serial, 0.8% Vp-p, 75Ω±1%

BVW-D75

		Metal tape	Oxide tape
Bandwidth	Luminance	30 Hz to 4.5 MHz $^{+0.5}_{-3.0}$dB	30 Hz to 4.1 MHz $^{+0.5}_{-6.0}$dB
	Color difference	30 Hz to 1.5 MHz $^{+0.5}_{-3.0}$dB	30 Hz to 1.5 MHz $^{+0.5}_{-3.0}$dB
S/N ratio*	Luminance	more than 51 dB	more than 48 dB
	Color difference	more than 49 dB	more than 46 dB
Y/C delay		less than 20 ns	less than 20 ns
K-factor (2T pulse)		less than 2.0%	less than 3.0%
Low frequency non-linearity	Luminance	less than 3.0%	less than 3.0%
	Color difference	less than 4.0%	less than 4.0%

* SC trap off, 10 kHz to 4.2 MHz.

BVW-D75PS

			Metal tape	Oxide tape
Bandwidth	Luminance		25 Hz to 5.5 MHz $^{+0.5}_{-3.0}$dB	25 Hz to 4.0 MHz $^{+0.5}_{-6.0}$dB
	Color difference		25 Hz to 2.0 MHz $^{+0.5}_{-3.0}$dB	25 Hz to 1.5 MHz $^{+0.5}_{-3.0}$dB
S/N ratio*	Luminance		more than 48 dB	more than 46 dB
	Color difference		more than 48 dB	more than 45 dB
Y/C delay			less than 20 ns	less than 20 ns
Pulse shape distortion	Luminance, 2T pulse	K-pulse	less than 1.5%	less than 3.0%
		K-pb	less than 1.0%	—
		K-bar	less than 1.0%	—
	Color difference, 8T pulse	K-pulse	less than 1.5%	less than 3.0%
		K-pb	less than 1.0%	—
		K-bar	less than 1.0%	—
Low frequency non-linearity	Luminance		less than 3.0%	less than 3.0%
	Color difference		less than 3.0%	less than 3.0%

* SC trap off, 10 kHz to 5 MHz.

All the values in the table were obtained by playing back a tape on which component signals were recorded and measuring the signals through a standard D/A convertor.

Audio

Audio recording	Channels 1 and 2: Bias Channels 3 and 4: FM
Input/output parameter*	Serial: 0.8Vp-p, 75Ω±1% Analog input: Line: –10 to +32 dBu (nominal: +4 dBu) 600Ω/10kΩ, balanced Microphone: –74 to –32 dBu (nominal: –60 dBu) 600Ω/3kΩ, balanced Digital input: AES/EBU format, balanced Analog output: Line: –∞ to +14 dBu (nominal: +4 dBu) 600Ω load, balanced AUDIO SELECTED OUT: –∞ to +14 dBu (nominal: +4 dBu) 600Ω load, balanced HEADPHONES: –∞ to –12 dBu, 8Ω load, unbalanced Digital output: AES/EBU format, balanced

*0 dBu = 0.775 Vrms

BVW-D75

		Metal tape	Oxide tape
LNG	Frequency response (10 dB below reference level*)	40 Hz to 15 kHz $^{+1.0}_{-2.0}$ dB	40 Hz to 15 kHz ±3.0 dB
	S/N ratio (at 3% distortion)	more than 72 dB	more than 50 dB (Dolby off)
	Distortion (THD, at 1 kHz)	less than 1%	less than 2%
	Crosstalk (at 1 kHz)	less than –65 dB	less than –65 dB
	Stereo phase (at 15 kHz)	less than 20°	less than 20°
	Erasure depth (at 1 kHz)	more than 70 dB	more than 70 dB
	Wow and flutter	less than 0.1% rms	less than 0.1% rms
AFM	Frequency response	20 Hz to 20 kHz $^{+0.5}_{-2.0}$ dB	—
	Dynamic range	more than 85 dB	—
	Distortion (THD, at 1 kHz)	less than 0.5%	—
	Crosstalk (at 1 kHz)	less than –70 dB	—
	Stereo phase (at 20 kHz)	less than 10°	—

* Reference level: +4 dBm

Unless otherwise specified, all the values in the table were obtained by measuring analog output signals with Dolby noise reduction circuitry on.

BVW-D75PS

			Metal tape	Oxide tape
LNG	Frequency response (20 dB below peak level*)		40 Hz to 15 kHz $^{+1.0}_{-2.0}$ dB	40 Hz to 15 kHz ±3.0 dB
	S/N ratio (at peak level* weighted CCIR 468-3)		more than 68 dB	more than 62 dB
	Distortion (K-3, at 1 kHz)	At peak level*	less than 3%	less than 3%
		At operation level (+4 dBm)	less than 1%	less than 1%
	Crosstalk (at 1 kHz)		less than –71 dB	less than –60 dB
	Stereo phase (at 15 kHz)		less than 20°	less than 45°
	Erasure depth (at 1 kHz)		more than 65 dB	more than 65 dB
	Wow and flutter (DIN45507)		less than 0.1% rms	less than 0.1% rms
AFM	Frequency response (20 dB below peak level**)		20 Hz to 20 kHz $^{+0.5}_{-2.0}$dB	—
	S/N ratio (at peak level** weighted CCIR 468-3)		more than 72 dB	—
	Distortion (K-3, at 1 kHz)	At peak level**	less than 3%	—
		At operation level (+4 dBm)	less than 0.6%	—
	Crosstalk (at 100 Hz to 12.5 kHz)		less than –70 dB	—
	Stereo phase (at 20 kHz)		less than 10°	—

* Peak level: +8 dB above operation level

** Peak level: +19 dB above operation level

All the values in the table were obtained by measuring analog output signals with Dolby noise reduction circuitry on.

Processor adjustment range

Video level	±3 dB
Chroma level	±3 dB
Setup level	0 to 15 IRE (for BVW-D75)
Black level	0 to 100 mV (for BVW-D75PS)
System sync phase	–1 to +3 µs (fine adjustment range 300 ns)
Y/C delay	±100 ns

Input connectors

REF VIDEO IN	BNC type (2, for bridging connection) Black burst or 1.0 Vp-p±3.0 dB 75Ω, Sync negative
DIGITAL SERIAL V/A IN	BNC type (2, for active loop-through) 0.8 Vp-p, 75Ω
DIGITAL AUDIO IN CH-1/2, CH-3/4	XLR, 3-pin, female (2) AES/EBU format, balanced
ANALOG AUDIO IN CH-1/2/3/4	XLR, 3-pin, female (4) LOW: –60 dBm, 600Ω or 3kΩ, balanced HIGH: +4 dBm, 600Ω or 10kΩ, balanced
TIME CODE IN	XLR, 3-pin, female 0.5 to 18 Vp-p, 10kΩ, balanced

Output connectors

DIGITAL SERIAL V/A OUT	BNC type (4) 0.8 Vp-p, 75Ω
DIGITAL AUDIO OUT CH-1/2, CH-3/4	XLR, 3-pin, male (2) AES/EBU format, balanced
ANALOG AUDIO OUT CH-1/2/3/4	XLR, 3-pin, male (4) +4 dBm at 600Ω load, low impedance, balanced
ANALOG AUDIO SELECTED OUT	XLR, 3-pin, male (2) +4 dBm at 600Ω load, low impedance, balanced
MONITOR OUTPUT Luminance Chrominance R-Y B-Y	BNC type (3) 1.0 Vp-p, 75Ω, sync negative 0.7 Vp-p, 75Ω 0.7 Vp-p, 75Ω BVW-D75: 100/7.5/77/7.5 color bars BVW-D75PS: 100/0/100/0 color bars Time code and other kinds of information are superimposed on the signals output from the MONITOR OUTPUT connectors when the CHARACTER switch is set to ON.
TIME CODE OUT	XLR, 3-pin, male 2.2 Vp-p at 600Ω load, balanced
HEADPHONES	JM-60 stereo phone jack, –∞ to –12 dBm at 8Ω load, unbalanced

Remote connectors

TBC REMOTE	15-pin multi, male
REMOTE 1-IN	9-pin multi, female
REMOTE 1-OUT	9-pin multi, female
REMOTE 2	36-pin multi, female
KY REMOTE	15-pin multi, female

Accessories supplied

Power cord (1)
RCC-5G 9-pin remote control cable (1)
Extension board A (1)
Extension board B (1)
PSW4 × 16 screws for rack mounting (4)
Operation manual (1)
Maintenance manual (1)

Optional accessories

BVR-75A remote control panel
RMM-100 rack mount adaptor
BCT-5CLN cleaning cassette
BVR-50 TBC remote controller
ECD-3C/10C/30C digital audio cable (AES/EBU format)

Design and specifications are subject to change without notice.

A-B roll edit
An edit in which two or more players are used to create special effects such as dissolve and wipe, and one recorder is used to record the results of the edit. Using an editing controller allows efficient control of the VTRs and very precise editing.

AFM recording
Abbreviation of Audio Frequency Modulation recording. In this method, audio signals are frequency-modulated and recorded with the FM video signals on the chrominance track of the tape. High head-to-tape velocity makes it possible to use part of the high-frequency video bandwidth to obtain a wide audio bandwidth and support multi-channel recording. In the Betacam system, AFM recording is possible only when using metal tape.

Assemble edit
An edit mode for adding new scenes to the end of existing recorded scenes. Continuity of CTL signals at the edit points is maintained electrically. In this mode, inserting new scenes into the middle of the existing recorded scenes causes noise to appear on the picture at the end of the inserted scenes.

B-Y signal
A chrominance signal determined by subtracting the Y (luminance) signal from the B (blue) signal. One of the component signals.

Bridging connection
A connection which allows a signal input to an input terminal to pass through the unit and exit from an output terminal as input to external equipment. Also called loop-through connection.

Capstan
A drive mechanism that moves the tape at a specified speed. Its rotation normally synchronizes with a reference sync signal.

Chrominance signal
Color signal containing color information such as hue and saturation. Also called C signal.

Color frame
The color subcarrier phase, whose one cycle consists of two frames (four fields) in NTSC format and four frames (eight fields) in PAL format.

Color framing
Maintenance of continuity in the color subcarrier phase between one frame and the next, for the purpose of avoiding noise on the picture.

Component signal
A video signal consisting of a luminance signal (Y) and two chrominance signals (R-Y, B-Y).

Composite signal
A composite video signal containing video, burst and sync signals.

CONFI (confidence) head
Video and audio heads used for playing back the signals currently being recorded on the tape, to ensure that the video and audio signals are being recorded.

CTL
Abbreviation of control signal. A pulse signal recorded on a longitudinal track of the tape in units of fields. Counting this signal allows the number of frames to be used to display the tape running time. It is also used as a control signal to adjust the relationship between the scanning position of the video heads and tape movement during playback to match that during recording.

Drop frame mode
In NTSC format, the actual number of frames per second is approximately 29.97, while that for the time code is specified as 30. Drop frame mode is a mode in which the time code is advanced in such a way that the difference in frame value between real time and the time codes is corrected. In this mode, two frames are skipped at the beginning of each minute, except for every tenth minute, so that the frame value for time codes matches that for real time.

E-E mode
Abbreviation of electric-to-electric mode. Signals output from the output terminal pass through internal electric circuits, but not through magnetic conversion circuits such as heads and tapes. This mode is used for confirming input signals or adjusting the input level.

External synchronization
Synchronization of the signals and tape transport of a VTR with those of a reference VTR.

Insert edit
An edit mode for inserting new scenes into the middle of existing recorded scenes. The recorder uses CTL signals already recorded on the recorder tape to control tape movement. Before editing, VBS signals (see page A-15) must be recorded over the entire length of the recorder tape.

IRE
A unit for expressing video level as determined by the Institute of Radio Engineers (now called the Institute of Electrical and Electronic Engineers).

LNG recording
Abbreviation of logngitudinal recording. A method of recording audio signals by radio frequency bias method on the longitudinal track of the tape using the fixed head.

LTC
Abbreviation of Longitudinal Time Code. Time code recorded on a longitudinal track of the tape. During playback of still pictures, LTC cannot be read since the tape is not moving. During slow playback, the output of LTC is so small that it may not be read correctly, depending on the playback speed.

Luminance signal
The signal that determines the brightness of the picture. Also called Y signal. One of the component signals.

Metal tape
Magnetic tape coated with microscopic particles of metal dispersed in a liquid binder. It allows high-density recording.

Moisture condensation
Condensation of moisture on the tape transport mechanisms. If moisture condenses on the head-drum, the tape adheres to the drum and causes malfunction.

Non-drop-frame mode
A mode of advancing the time code in such a way that the difference in frame values between real time and the time code is neglected. Using this mode produces a difference of approximately 86 seconds per day between real time and time code, which causes problems when editing programs in units of seconds using the number of frames as a reference.

Oxide tape
Magnetic tape coated with microscopic particles of ferric oxide dispersed in a liquid binder.

R-Y signal
A chrominance signal determined by subtracting the Y (luminance) signal from the R (red) signal. One of the component signals.

Reference video signal
A video signal consisting of a sync signal or sync and burst signals, used as a reference.

S/N ratio
Abbreviation of Signal-to-Noise ratio. The higher the S/N ratio, the less noise and higher the picture quality.

Search mode
A VTR mode used when searching for specific scenes, by viewing the video output or time codes while playing back the tape at various speeds in forward or reverse direction.

Servo lock
Synchronizing the drum rotation phase and tape transport phase with a reference signal during playback and recording so that the video heads scan the tape in the same pattern during playback and recording.

Superimpose
To put a picture (or a set of characters) onto another so that both can be seen at the same time.

Sync signal
A reference signal consisting of vertical and horizontal sync signals used for synchronizing the scanning patterns of the video camera and the monitor.

TBC
Abbreviation of Time Base Corrector. Electronic circuits to electrically stabilize the playback signals by removing color variation and roll in the playback picture caused by irregularity in drum rotation and tape movement. Time base correction reduces deterioration of picture quality when transmitting or copying playback signals.

Time code
Signals recorded on the tape to supply information on tape position such as the hour, minute, second and frame, to assist in setting edit points or searching for particular scenes. There are two types of time code: LTC and VITC.

Tracking
Electrically controlling the video head so that the recording phase matches the playback phase of the tape. Especially when playing back the tape with a VTR other than the one used for recording, adjusting the tracking prevents noise from appearing on the picture.

User bits
Sections of the time code consisting of a total of 32 bits used for recording information such as the year, month and day, tape ID number or a program ID number.

V-blanking
The portion of the video signal that occurs between the end of one field and the beginning of the next. During this time, the electron beams in the cameras and monitors are turned off so that they can return from the bottom of the screen to the top without showing traces of movement on the screen. When the position of V-blanking is not adjusted correctly, a horizontal black bar appears on the screen.

VBS
Abbreviation of Video, Burst and Sync. A composite signal consisting of video signal, burst signal and sync signal.

VITC
Abbreviation of Vertical Interval Time Code. Time code recorded on a video signal track during V-blanking interval. It can be read correctly even during slow or still picture

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